
WAVE

(TM)

Release 2.1D John F. Collins, Biocomputing Research Unit.
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MPsrch_pp protein - protein database search, using Smith-Waterman algorithm

Run on: Tue Aug 29 17:04:16 1995; MacPar time 4.86 Seconds
520.987 Million cell updates/sec
Tabular output not generated.

Title: >US-08-249-671-5
Description: (1:165) from US08249671.pep
Perfect Score: 1222
Sequence: 1 CDLPQTHSGSRRTMLLAQ.....EIMRFSLSNQLSRKSE 165

Scoring table: PAM 150
Gap 11

Searched: 43470 seqs, 15335248 residues

Database: swiss-prot31
1 SPT1
2 SPT2
3 SPT3
4 SPT4
5 SPT5
6 SPT6
7 SPT7
8 SPT8

Statistics: Mean 44.731; Variance 85.676; scale 0.522

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description	Pred. No.
1	1210	99.0	188	4	INA2_HUMAN INTERFERON ALPHA-2 PR	2.34e-229
2	1074	87.9	189	4	INA5_HUMAN INTERFERON ALPHA-5 PR	1.12e-199
3	1050	85.9	189	4	INAD_HUMAN INTERFERON ALPHA-14 P	1.88e-194
4	1049	85.8	189	4	INA6_HUMAN INTERFERON ALPHA-6 PR	3.09e-194
5	1030	84.3	189	4	INAA_HUMAN INTERFERON ALPHA-4 PR	4.18e-190
6	1027	84.0	189	4	INAK_HUMAN INTERFERON ALPHA-21 P	1.88e-189
7	1026	84.0	189	4	INAG_HUMAN INTERFERON ALPHA-17 P	3.10e-189
8	1025	83.9	189	4	INAF_HUMAN INTERFERON ALPHA-16 P	5.11e-189
9	1017	83.2	189	4	INAA_HUMAN INTERFERON ALPHA-10 P	2.79e-187
10	1012	82.8	189	4	INA8_HUMAN INTERFERON ALPHA-8 PR	3.40e-186

11	1012	82.8	189	4	INA7_HUMAN INTERFERON ALPHA-7 PR	3.40e-186
12	1010	82.7	189	4	INA1_HUMAN INTERFERON ALPHA-1/13	9.25e-186
13	953	78.0	184	4	INA4_HORSE INTERFERON ALPHA-4 PR	2.13e-173
14	952	77.9	184	4	INA2_HORSE INTERFERON ALPHA-2 PR	3.50e-173
15	950	77.7	184	4	INA3_HORSE INTERFERON ALPHA-1 PR	9.49e-173
16	950	77.7	184	4	INA3_HORSE INTERFERON ALPHA-3 PR	9.49e-173
17	812	66.4	189	4	INAA_BOVIN INTERFERON ALPHA-A PR	5.59e-143
18	808	66.1	189	4	INAB_BOVIN INTERFERON ALPHA-B PR	4.04e-142
19	805	65.9	189	4	INA5_MOUSE INTERFERON ALPHA-5 PR	1.78e-141
20	804	65.8	189	4	INA1_BOVIN INTERFERON ALPHA-1 PR	2.92e-141
21	804	65.8	189	4	INAC_BOVIN INTERFERON ALPHA-C PR	2.92e-141
22	798	65.3	189	4	INA1_MOUSE INTERFERON ALPHA-1 PR	5.67e-140
23	792	64.8	189	4	INAD_BOVIN INTERFERON ALPHA-D PR	1.10e-138
24	782	64.0	190	4	INA2_MOUSE INTERFERON ALPHA-2 PR	1.53e-136
25	775	63.4	192	4	INA1_RAT INTERFERON ALPHA-1 PR	4.84e-135
26	770	63.0	190	4	INA7_MOUSE INTERFERON ALPHA-7 PR	5.70e-134
27	767	62.8	195	4	INO1_HUMAN INTERFERON OMEGA-1 PR	2.50e-133
28	763	62.4	190	4	INA9_MOUSE INTERFERON ALPHA-9 PR	1.80e-132
29	760	62.2	189	4	INA8_MOUSE INTERFERON ALPHA-8 PR	7.89e-132
30	760	62.2	189	4	INO2_MOUSE INTERFERON ALPHA-6 PR	7.89e-132
31	721	59.0	195	4	INO2_HORSE INTERFERON OMEGA-2 PR	1.70e-123
32	689	56.4	194	4	INA_FELCA INTERFERON PRECURSOR	1.11e-116
33	686	56.1	186	4	INA4_MOUSE INTERFERON ALPHA-4 PR	4.83e-116
34	677	55.4	195	4	INO1_BOVIN INTERFERON OMEGA-1 PR	3.95e-114
35	675	55.2	195	4	IND1_HUMAN INTERFERON DELTA-1 PR	1.05e-113
36	673	55.1	195	7	TP11_BOVIN TROPHOBLAST PROTEIN-1	2.80e-113
37	668	54.7	195	7	TP12_BOVIN TROPHOBLAST PROTEIN-1	3.22e-112
38	663	54.3	195	7	TP13_BOVIN TROPHOBLAST PROTEIN-1	3.71e-111
39	652	53.4	195	4	INO1_HORSE INTERFERON OMEGA-1 PR	7.97e-109
40	621	50.8	195	7	TP1_SHEEP TROPHOBLAST PROTEIN-1	2.88e-102
41	448	36.7	186	4	INB2_BOVIN INTERFERON BETA-2 PRE	3.37e-66
42	402	32.9	186	4	INB3_BOVIN INTERFERON BETA-3 PRE	8.15e-57
43	401	32.8	187	4	INB_HUMAN INTERFERON BETA PRECU	1.30e-56
44	377	30.9	186	4	INB_HORSE INTERFERON BETA PRECU	9.12e-52
45	332	27.2	186	4	INB1_BOVIN INTERFERON BETA-1 PRE	8.64e-43

ALIGNMENTS

RESULT 1
ID INA2_HUMAN STANDARD; PRT; 188 AA.
AC P01563; P01564;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 21-JUL-1986 (REL. 01, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-2 PRECURSOR (INTERFERON ALPHA-A) (LEIF A).
GN IFNA2.
OS HOMO SAPIENS (HUMAN).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PRIMATES.
RN [1]
RP SEQUENCE FROM N.A.
RM 81052322
RA GOEDDEL D.V., YELVERTON E., ULLRICH A., HEYNEKER H.L., MIOZZARI G.,
RA HOLMES W., SEEBURG P.H., DULL T.J., MAY L., STEBBING N., CREA R.,
RA MADDA S., MCCANDLISS R., SLOMA A., TABOR J.M., GROSS M.,
RA FAMILIETTI P.C., PESTKA S.;
RL NATURE 287:411-416(1980).
RN [2]
RP SEQUENCE FROM N.A.
RM 81148795
RA GOEDDEL D.V., LEUNG D.W., DULL T.J., GROSS M., LAWN R.M.,
RA MCCANDLISS R., SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.W.;
RL NATURE 290:20-26(1981).

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RN [3]
RP SEQUENCE FROM N.A.
RM 82060261
RA LAWN R.M., GROSS M., HOUCK C.M., FRANKA A.E., GRAY P.V.,
RA GOEDDEL D.V.;
RL PROC. NATL. ACAD. SCI. U.S.A. 78:5435-5439(1981).
RN [4]
RP SEQUENCE OF 7-188 FROM N.A.
RM 81015442
RA STREULI M., NAGATA S., WEISSMANN C.;
RL SCIENCE 209:1343-1347(1980).
RN [5]
RP SEQUENCE OF 24-112 AND 136-188.
RM 81052321
RA ALLEN G., FANTES K.H.;
RL NATURE 287:408-411(1980).
RN [6]
RP DISULFIDE BONDS.
RM 81123083
RA WETZEL R.;
RL NATURE 289:606-607(1981).
RN [7]
RP 3D-STRUCTURE MODELLING.
RM 94052087
RA MURGOLO N.J., WINDSOR W.T., HRUZA A., REICHERT P., TSARBOPOULOS A.,
RA BALDWIN S., HUANG E., PRAMANIK B., EALICK S., TROTTA P.P.;
RL PROTEINS 17:62-74(1993).
CC -1- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.
CC -1- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; V00548; HSIFR6.
DR EMBL; V00549; HSIFR7.
DR PIR; A01827; IVHUA2.
DR PIR; A01828; IVHUA3.
DR PDB; 2HIE; 31-AUG-94.
DR MM; 147562; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON_ALPHA_BETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL; 3D-STRUCTURE.
FT SIGNAL 1 23
FT CHAIN 24 188 INTERFERON ALPHA-2.
FT DISULFID 24 121
FT DISULFID 52 161
FT CONFLICT 46 46 K -> R (IN REF. 3 AND 4).
SQ SEQUENCE 188 AA; 21550 MW; 189049 CN;

DB 4; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 2.34e-229;
Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Db 24 cdipqthslsrrtllmqlaqrklsfscldkrdhdfgfpqeeqgnqfqaetipvlhemi 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISLFSCLKDRDRDFGPPQEEFGNQFOKAETIPVLHMI 60
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 84 qqifnlftkdsaaawdetllldkfyteylqqindleacvlgvgvtetplmkedsilavr 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 61 QQIFNLFSTKDSAAAWDETLLDKFYTELYQQINDLEACVIGVGVTETPLMKEDSILAVR 120
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 144 kyfqrtilylekkykspcawevvraeimsrfslnqlqeslrake 188
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 121 KYFQRITLYLEKXYKSPCAWEVVRVAEIMRSFSLSTNLQESLSRKE 165
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 2
ID INNA5_HUMAN STANDARD; PRT; 189 AA.

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AC P01569;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-5 PRECURSOR (INTERFERON ALPHA-G) (LEIF G) (INTERFERON
DE ALPHA-61).
GN IFNA5.
OS HOMO SAPIENS (HUMAN).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PRIMATES.
RN [1]
RP SEQUENCE FROM N.A.
RM 86037205
RA HENCO K., BROSTUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R.,
RA HOCHSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J.,
RA TODOKORO K., WAELCHLI M., NAGATA S., WEISSMANN C.;
RL J. MOL. BIOL. 185:227-260(1985).
RN [2]
RP SEQUENCE OF 57-189 FROM N.A.
RM 81148795
RA GOEDDEL D.V., LEUNG D.W., DULL T.J., GROSS M., LAWN R.M.,
RA MCCANDLISS R., SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.W.;
RL NATURE 290:20-26(1981).
CC -1- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.
CC -1- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; X02956; HSIFNA5.
DR EMBL; V00541; HSIFR13.
DR PIR; A01833; IVHUA7.
DR HSP; P01563; 2HIE.
DR MM; 147565; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON_ALPHA_BETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 189 INTERFERON ALPHA-5.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
SQ SEQUENCE 189 AA; 21942 MW; 184346 CN;

DB 4; Score 1074; Match 84.9%; QryMatch 87.9%; Pred. No. 1.12e-199;
Matches 141; Conservative 15; Mismatches 9; Indels 1; Gaps 1;

Db 24 cdipqthslsrrtllmqlaqrklsfscldkrdhdfgfpqeeqgnqfqaetipvlhemi 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISLFSCLKDRDRDFGPPQEEFGNQFOKAETIPVLHMI 59
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 84 iqgfnlftkdsaaawdetllldkfyteylqqindleacmqqevgvedtplmrvdsilv 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQIFNLFSTKDSAAAWDETLLDKFYTELYQQINDLEACVIGVGVTETPLMKEDSILAV 119
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 144 kyfqrtilylekkykspcawevvraeimsrfslnqlqerlrake 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 120 KYFQRITLYLEKXYKSPCAWEVVRVAEIMRSFSLSTNLQESLSRKE 165
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 3
ID INNA5_HUMAN STANDARD; PRT; 189 AA.
AC P01570;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 21-JUL-1986 (REL. 01, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-14 PRECURSOR (INTERFERON ALPHA-H) (LEIF H)
DE (INTERFERON LAMBDA-2-H).

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GN		IFNA14.
OS	HOMO SAPIENS (HUMAN).	
OC	EUKARYOTA; METAZOA;	CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC	EUETHERIA; PRIMATES.	
RN	[1]	
RN	SEQUENCE FROM N.A.	
RM	86037205	
RR	HENCO K., BROSTUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R., HOCHSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J., TODOKORO K., WAEGLCHI M., NAGATA S., WEISSMAN C.; J. MOL. BIOL. 185:227-260(1985).	
RRL	{2}	
RP	SEQUENCE FROM N.A.	
RP	81201124	
RR	LAWN R.M., ADelman J., DULL T.J., GROSS M., GOEDDEL D.V., ULLRICH A.; SCIENCE 212:1159-1162(1981).	
RRL	[3]	
RN	SEQUENCE FROM N.A.	
RM	81148795	
RR	GOEDEL D.V., LEUNG D.W., DULL T.J., GROSS M., LAWN R.M., MCCANDLISS R., SEEBURG P.H., ULLRICH A., YEIVERTON E., GRAY P.W.; NATURE 290:20-26(1981).	
CC	- I - FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMS:	
CC	A PROTEIN KINASE AND AN OLIGODENYLYLATE SYNTHETASE.	
CC	- I - SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.	
CC	- I - A VARIANT SEQUENCE DIFFERS IN 3 POSITIONS. THE LAST 2 BEING THE RESULT OF A DELETION FOLLOWED BY AN INSERTION.	
DR	EMBL; V00533; HSIFD3.	
DR	EMBL; X02959; HSIFNA14.	
DR	EMBL; J00542; HSIFR14.	
DR	EMBL; J00214; HSIFNAH.	
DR	P/R; C23753; IVHD14.	
DR	HSP; F01563; ZHIÉ.	
DR	M/M; 147579; 11TH EDITION.	
DR	PROSITE; PS00252; INTERFERN ALPHABETA.	
KW	CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; GLYCOPROTEIN; SIGNAL.	
FT	SIGNAL	1 23
FT	CHAIN	24 189
FT	D/SU/F/D	24 122
FT	D/SU/L/F/D	52 162
FT	CARB/H/Y/D	25 25
FT	VARIANT	175 175
FT	VARIANT	182 182
FT	VARIANT	184 184
FT	SEQUENCE	189 AA; 22062 MW; 182495 CN;
DB	4; Score	1050; Match 81.9%; OryMatch 85.9%; Pred. No. 1.88e-194;
Matches	136; Conservative	19; Mismatches 10; Indels 1; Gaps 1;

Db	24	cnlqethalnrrt lmlmagmrissfscldrhdfcpqefdgngfqkaaisvlhem	83
Qy	1	CDLPOTHSLGRRTMLLAQMRRIISLSCLDKDRDFGPQEEF-GNQFQKAEITPVLHEM	59
Db	84	mqgtfnlfstknsaawdetllekfyielfqmndleacviegvgveetplmnedsilav	143
Qy	60	IQQIFNFSKDSAAWDETLLDKFYELYQQIINDLEACVIGVGVTETPLMKEDSILAV	119
Db	144	kyqfritlylmeekypscawevvraeimrslsfstnlqrlrrkd	189
Qy	120	KYFORITLYLEKQYSCPAWEVVRAEIMRFSFSLSTWAEISRLS	165

RESULT

ID	INA6 HUMAN	STANDARD;	PRT; 189 AA.
AC	P05013;		
DT	13-AUG-1987 (REL. 05, CREATED)		
DT	13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)		
DT	01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)		
DE	INTERFERON ALPHA-6 PRECURSOR (INTERFERON ALPHA-K) (LEIF K) (INTERFERON		
DE	ALPHA-5A).		
GN	IFNA6.		
OS	HOMO SAPIENS (HUMAN).		
OC	EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;		
OC	EUTHERIA; PRIMATES.		
CC	[1]		
RP	SEQUENCE FROM N.A.		
RM	8603205		
RA	HENCO K., BROSTUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R.,		
RA	HOCKSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J.,		
RA	TODOKORO K., WELCHLI M., NAGATA S., WEISSMANN C.;		
RL	J. MOL. BIOL. 185:2271-260 (1985).		
CC	-I- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL		
CC	ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:		
CC	A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.		
CC	-I- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.		
CC	EMBL; X02958; HSIFNA6.		
DR	PIR; A23753; IVHU16.		
DR	HSP; P01563; ZHI1.		
DR	MIM; 147566; 11TH EDITION.		
DR	PROSITE; PS00252; INTERFERON_ALPHA.BETA.		
FW	CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.		
KW	SIGNAL	1 23	
FT	CHAIN	24 189	INTERFERON ALPHA-6.
FT	DISULFID	24 122	BY SIMILARITY.
FT	DISULFID	52 162	BY SIMILARITY.
SQ	SEQUENCE	189 AA; 22140 MW; 182468 CN;	
DB	4; Score 1049; Match 86.1%; QryMatch 85.8%; Pred. No. 3.09e-194;		
	Matches 143; Conservative 8; Mismatches 14; Indels 1; Gaps 1;		
Db	24 cdldpqtshlgrtmtllagmrtslfsckldtrhfrpqeefdgngfkacaisvlhev 83		
QY	1 CDLPQTHSLGRRTMLLAQMRISLFSCKLDREDFGFQEEF-GNQFQKAEITPVLHEM 59		
Db	84 iqctfnlfskdsavawderllldklytelvqglnldeacvmcevwvggtplmedsilav 143		
QY	60 IQQIFNLFSTKDSAAWDETLDKFYTELQYQIINDIEACVIGQGVGTPLMKEDSILAV 119		
Db	144 rkyfqrilyltckyscawewvraeimrfsfssnlgrrlrrke 189		
QY	120 RKYFORITLYLKEKYSPCAWEVVRAEIMRFSLSLNIQESLRKSE 165		
RESULT	5		
ID	INA4 HUMAN	STANDARD;	PRT; 189 AA.
AC	P05014; P13358;		
DT	13-AUG-1987 (REL. 05, CREATED)		
DT	13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)		
DT	01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)		
DE	INTERFERON ALPHA-4 PRECURSOR (INTERFERON ALPHA-4B) (INTERFERON		
DE	ALPHA-M1) (INTERFERON ALPHA-76).		
GN	IFNA4.		
OS	HOMO SAPIENS (HUMAN).		
OC	EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;		
OC	EUTHERIA; PRIMATES.		
CC	[1]		
RP	SEQUENCE FROM N.A.		

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86037205
RA HENCO K., BROSTUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R.,
RA HOCHSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J.,
RA TODOKORO K., WAEUCHLI M., NAGATA S., WEISSMANN C.;
RL J. MOL. BIOL. 185:227-260(1985).
RN [2]
RP SEQUENCE FROM N.A.
RM 84307815
RA LINNANE A.W., BEILHARZ M.W., MCMULLEN G.L., MACREADIE I.G.,
RA MURPHY M., NISBET I.T., NOVITSKI C.E., WOODROW G.C.;
RL BIOCHEM. INT. 8:725-732(1984).
CC -1- FUNCTION: INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.
CC -1- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; X02955; HSIFNA4B.
DR EMBL; M27318; HSIFNAM1.
DR PIR; E23753; IVH04B.
DR HSSP; P01563; ZHIE.
DR MIM; 147564; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON ALPHABETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 189 INTERFERON ALPHA-4.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
FT CONFLICT 74 74 T -> A (IN REF. 2).
FT CONFLICT 137 137 V -> E (IN REF. 2).
SQ SEQUENCE 189 AA; 21808 MW; 184951 CN;

DB 4; Score 1030; Match 81.3%; QryMatch 84.3%; Pred. No. 4.18e-190;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;

Db 24 cdipqthslgnrtalillagmrgisfscldkdrhdfgfpqeeefgqkqaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTLLMLLAQMRRLSFLSCLKDRDRFGFPQEEF-GNQFQKAEITPVLHEM 59

Db 84 iqqtfnlstedsaaweqsllekfstelyqndleacvigeqvteetplmrvdsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQIFNLFSTKSSAAWDETLLDKFYTELYQQLNDLEACVIGGVGTETPLMKEDSILAV 119

Db 144 rkyfqrtilytkkyspcawevvraeimsfslstnlqesirske 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 120 RKYFQRITLYLKEKYSPCAWEVVRAEIMRSFSLSTNLQESIRSKE 165

RESULT 6
ID INAK HUMAN STANDARD; PRT; 189 AA.
AC P01568;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 21-JUL-1986 (REL. 01, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-21 PRECURSOR (INTERFERON ALPHA-F) (LEIF F).
GN IFNA21.
OS HOMO SAPIENS (HUMAN).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PRIMATES.
RN [1]
RP SEQUENCE FROM N.A.
RM 81148795
RA GOEDEL D.V., LEUNG D.W., DULL T.J., GROSS M., LAWN R.M.,
RA MCCANDLISS R., SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.M.;
RL NATURE 290:20-26(1981).
RN [2]

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SEQUENCE FROM N.A.
RA GREN E.Y., BERZIN V.M., TSIMANIS A.Y., APSALON U.R., VISHNEVSKII Y.I.,
RA YANSONE I.V., DISHLER A.V., PUDOVA N.V., SMORODINTSEV A.A.,
RA IOVLEV V.I., STEPANOV A.N., FELDMANE G.Y., MELDRAIS Y.A., LOZHA V.P.,
RA KAVSAN V.M., EFIMOV V.A., SVERDLOV E.D.;
RL DOKL. BIOCHEM. 269:91-95(1983).
CC -1- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.
CC -1- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; V00540; HSIFR12.
DR EMBL; X00145; HSIFR16.
DR EMBL; J00212; HSIFNAF.
DR PIR; A01832; IVHUF.
DR HSSP; P01563; ZHIE.
DR MIM; 147584; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON ALPHABETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 189 INTERFERON ALPHA-21.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
FT CONFLICT 119 119 M -> L (IN REF. 2).
SQ SEQUENCE 189 AA; 21759 MW; 186062 CN;

DB 4; Score 1027; Match 81.9%; QryMatch 84.0%; Pred. No. 1.88e-189;
Matches 136; Conservative 16; Mismatches 13; Indels 1; Gaps 1;

Db 24 cdipqthslgnrtalillagmrgisfscldkdrhdfgfpqeeefgqkqaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTLLMLLAQMRRLSFLSCLKDRDRFGFPQEEF-GNQFQKAEITPVLHEM 59

Db 84 iqqtfnlstedsaaweqsllekfstelyqndleacvigeqvteetplmrvdsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQIFNLFSTKSSAAWDETLLDKFYTELYQQLNDLEACVIGGVGTETPLMKEDSILAV 119

Db 144 rkyfqrtilytkkyspcawevvraeimsfslstnlqesirske 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 120 RKYFQRITLYLKEKYSPCAWEVVRAEIMRSFSLSTNLQESIRSKE 165

RESULT 7
ID INAK HUMAN STANDARD; PRT; 189 AA.
AC P01571;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 01-OCT-1994 (REL. 30, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-17 PRECURSOR (INTERFERON ALPHA-I') (INTERFERON
DE ALPHA-T) (INTERFERON ALPHA-88).
GN IFNA17.
OS HOMO SAPIENS (HUMAN).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PRIMATES.
RN [1]
RP SEQUENCE FROM N.A.
RM 81201124
RA LAWN R.M., ADELMAN J., DULL T.J., GROSS M., GOEDEL D.V., ULLRICH A.;
RL SCIENCE 212:1159-1162(1981).
RN [2]
RP SEQUENCE FROM N.A.
RM 85229953
RA MIZOGUCHI J., PITHA P.M., RAJ N.B.K.;
RL DNA 4:221-232(1985).
RN [3]

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RP SEQUENCE OF 14-189 FROM N.A.
RM 85235859
RA LUND B., VON GABAIN A., EDLUND T., NY T., LUNDGREN E.;
RL J. INTERFERON RES. 5:229-238(1985).
CC -/- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.
CC -/- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; V00532; HSIFD2.
DR EMBL; W1246; HSIFNA.
DR PIR; A01835; IVH0A9.
DR HSP; P01563; ZHIE.
DR MIM; 147583; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON ALPHABETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 189 INTERFERON ALPHA-17.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
FT CONFLICT 57 57 H -> P (IN REF. 1).
FT CONFLICT 184 184 I -> R (IN REF. 3).
SQ SEQUENCE 189 AA; 21728 MW; 183255 CN;
DB 4; Score 1026; Match 81.3%; QryMatch 84.0%; Pred. No. 3.10e-189;
Matches 135; Conservative 19; Mismatches 11; Indels 1; Gaps 1;
Db 24 cdtpqthslgmrrallilacmgriisfscldkrdhfglpqgeefdgngfktqaisvlhem 83
Qy 1 CDLPQTHSLGSRRTLLMLLAQMRRISLFSCLKDRDRFGFPQEEF-GNQFQKAETIPVLHEM 59
Db 84 iqqtfnlfstedsaaeqallekfstelyqqlnleacvigeqgmeetplmmedsilav 143
Qy 60 IQQIFNLFSTKSSAANDETLLDKFYELLYQQLNDLEACVIGQGVGTETPLMKEDSILAV 119
Db 144 rkyfgritlylekkykspcawevraeimsrslfstnlqkrlrrkd 189
Qy 120 RKYFORITLYLEKRYKSPCAWEVRAEIMRSFSLSTNIQESLSRKE 165
RESULT 8
ID INAF HUMAN STANDARD; PRT; 189 AA.
AC P05015;
DT 13-AUG-1987 (REL. 05, CREATED)
DT 13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-16 PRECURSOR (INTERFERON ALPHA-WA).
GN IFNA16.
OS HOMO SAPIENS (HUMAN).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PRIMATES.
RN [1]
RP SEQUENCE FROM N.A.
RM 86037205
RA HENCO K., BROSTUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R.,
RA HOCHSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J.,
RA TODOKORO K., WAEICHLI M., NAGATA S., WEISSMANN C.;
RL J. MOL. BIOL. 185:227-260(1985).
RN [2]
RP SEQUENCE FROM N.A.
RM 85038533
RA TORCZYNSKI R.M., FUKU M., BOLLON A.P.;
RL PROC. NATL. ACAD. SCI. U.S.A. 81:6451-6455(1984).
CC -/- FUNCTION: PRODUCED BY MACROPHAGES. IFN-ALPHA HAVE ANTIVIRAL

Db	24	cdlpqthelnrralllmggrispfcslkdrbhrfpeefedghqfqtqaisvhem	88
Qy	1	CDLPQTHSGSRRTLLMLLAQMRRISLFSCLKDRDRFCGPQEEF-GNQFQKAETIPVLHEM	59
Db	84	iqqtfnlfstdsaaeqsllkftelylqqlndleacvqevqveetplmedfilav	143
Qy	60	IQQIFNLFSTKDSRAWDETLLDKFYELYQQLNDLEACVIGCVGVTETPLMKEDSILAV	119
Db	144	kyqfritlylmeckyspcawevvraeimsrfsfslnkklrrkd	189
Qy	120	RKYFQIRITLYLKEKKYSPCAWEVRAEIMRFSFSLNQLQESLRSKE	165
RESULT 12			
ID	INAI	HUMAN	STANDARD; PRT; 189 AA.
AC	DC	P01562;	
DT	21-JUL-1986	(REL. 01, CREATED)	
DT	21-JUL-1986	(REL. 01, LAST SEQUENCE UPDATE)	
DT	01-FEB-1995	(REL. 31, LAST ANNOTATION UPDATE)	
DE	INTERFERON ALPHA-1/13	PRECURSOR (INTERFERON ALPHA-D) (LEIF D).	
GN	IFNA1	AND IFNA13.	
OS	HOMO SAPIENS	(HUMAN).	
OC	EUKARYOTA;	METAZOA;	CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC	EUTHERIA;	PRIMATES.	
RP	(1)	SEQUENCE FROM N.A.	
RP	RM	81005094	
RA	MANTEI N.,	SCHWARZSTEIN M., STREULI M., PANEM S., NAGATA S.,	
RA	WEISSMANN C.;		
RL	GENE 10:1-10	(1980).	
RP	(2)	SEQUENCE FROM N.A.	
RP	RM	80254543	
RA	TANIGUCHI T.,	MANTEI N., SCHWARZSTEIN M., NAGATA S., MURAMATSU M.,	
RA	WEISSMANN C.;		
RL	NATURE 285:547-549	(1980).	
RP	(3)	SEQUENCE FROM N.A.	
RP	RM	81148795	
RA	GOEDEL D.V.,	LEUNG D.W., DULL T.J., GROSS M., LAWN R.M.,	
RA	MCANDLISS R.,	SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.W.;	
RL	NATURE 290:20-26	(1981).	
RP	(4)	SEQUENCE FROM N.A.	
RP	RM	85003592	
RA	TOPOKORO K.,	KIOUSSIS D., WEISSMANN C.;	
RL	EMBO J. 3:1809-1812	(1984).	
CC	-1-	FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL	
CC	CC	ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:	
CC	CC	A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.	
CC	-1-	INTERFERONS ALPHA-1 AND ALPHA-13 HAVE IDENTICAL PROTEIN	
CC	CC	SEQUENCES.	
CC	-1-	SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.	
DR	EMBL;	V00538; HSIFR10.	
DR	EMBL;	X00803; HSIFR18.	
DR	PIR;	A01826; IVHUAL.	
DR	PIR;	C23285; C23285.	
DR	HSP;	P01563; ZHIE.	
DR	MM;	147578; 11TH EDITION.	
DR	MM;	147660; 11TH EDITION.	
DR	PROSITE;	PS00252; INTERFERON ALPHABETA.	
DR	CYTOKINE;	ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.	
FW	SIGNAL	1	23

FT	CHAIN	24	189	INTERFERON ALPHA-1/13.
FT	DISULFID	24	122	BY SIMILARITY.
FT	DISULFID	52	162	BY SIMILARITY.
FT	CONFLICT	137	137	A -> V (IN REF. 3).
SQ	SEQUENCE	189 AA;	21725 MW;	177670 CN;
DB	4;	Score	1010;	Match 82.5%;
Matches	137;	Conservative	13;	Mismatches 15;
				Indels 1;
				Gaps 1;
Db	24	cdlpethalndrrtvlmlqgmrrispsckldrhdgfpqevfdgnqfkpapaishel	83	
Qy	1	CDLPQTHSLGSRRTLLMQLAQRRIISLFSCKIDRRDFGFPQEEF-GNQFQKAETIPVLHEM	59	
Db	84	iqqifnlftkdsaaawdelldkfcytlylqqclndleacvmqeervgetplmndasilav	143	
Qy	60	IQQIFNLFSKDSAAWDETLDDKFEYTYLYQQQLNDLEACVIOGVGVTEPLMKEDSILAV	119	
Db	144	kyfrtilylqekykspcawevraeimsrlsistnlqlrrrke	189	
Qy	120	KYFRQITLYLKEKKYKSPCAWEVRAEIMRSFSLTNLQESLRKE	165	
RESULT	13			
ID	IN44 HORSE	STANDARD;	PRT;	184 AA.
AC	P05006;			
DT	13-AUG-1987 (REL. 05, CREATED)			
DT	13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)			
DT	01-MAR-1989 (REL. 10, LAST ANNOTATION UPDATE)			
DE	INTERFERON ALPHA-4 PRECURSOR.			
OS	EQUUS CABALLUS (HORSE).			
OC	EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;			
OC	EUTHERIA; PERISSODACTYLA.			
RN	[1]			
RM	SEQUENCE FROM N.A.			
RP	87053170			
RA	HIMMLER A.; HAUPTMANN R., ADOLF G.R., SWETLY P.;			
RL	DNA 5:345-356 (1986).			
CC	-!- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL			
CC	ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:			
CC	A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.			
CC	-!- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.			
DR	EMBL; M14543; ECIFN4A.			
DR	PIR; D24912; IVHOA4.			
DR	HSP; P01563; ZHI2.			
DR	PROSITE; PS00252; INTERFERON ALPHABETA.			
FW	CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.			
KF	SIGNAL	1	23	
FT	CHAIN	24	184	INTERFERON ALPHA-4.
FT	DISULFID	24	122	BY SIMILARITY.
FT	DISULFID	52	162	BY SIMILARITY.
SQ	SEQUENCE	184 AA;	20860 MW;	178676 CN;
DB	4;	Score	953;	Match 77.0%;
Matches	124;	Conservative	19;	Mismatches 17;
				Indels 1;
				Gaps 1;
Db	24	cdlpethalngtrvmlqlgmrrispsckldrhdgfpqevfdgnqfkpapaishet	83	
Qy	1	CDLPQTHSLGSRRTLLMQLAQRRIISLFSCKIDRRDFGFPQEEF-GNQFQKAETIPVLHEM	59	
Db	84	iqqifnlftkdsaaawdelldklytlylqqclndleacvmqeervgetplmndasilav	143	
Qy	60	IQQIFNLFSKDSAAWDETLDDKFEYTYLYQQQLNDLEACVIOGVGVTEPLMKEDSILAV	119	
Db	144	rvyfrtilylqekykspcawevraeimsrlsistnlqlrrrke	184	

QY	120	RKYFORITLYIKKYSPCAWEWVRAETMRSFSLSTNLQES 160
RESULT	14	
ID	INA2 HORSE	STANDARD; PRT; 184 AA.
AC	P05004;	
DT	13-AUG-1987 (REL. 05, CREATED)	
DT	13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)	
DT	01-MAR-1989 (REL. 10, LAST ANNOTATION UPDATE)	
DE	INTERFERON ALPHA-2 PRECURSOR.	
DS	EQUUS CABALLUS (HORSE).	
OC	EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA	
OC	EUTHERIA; PERISSODACTYLIA.	
RN	[1]	
RP	SEQUENCE FROM N.A.	
RM	87053170	
RA	HIMMLER A., HAUPTMANN R., ADOLF G.R., SWETLY P.;	
RL	DNA 5:345-356(1986).	
CC	-I- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAN-	
CC	A ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION	
CC	A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETAS	
CC	-I- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.	
DR	EMBL; M14541; ECFN2.	
DR	PIR; B24912; IVHOA2.	
DR	HSP; P01563; ZHIE.	
DR	PROSITE; PS00252; INTERFERON ALPHABETA.	
KW	CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.	
FT	SIGNAL	1 23
FT	CHAIN	24 184 INTERFERON ALPHA-2.
FT	DISULFID	24 122 BY SIMILARITY.
FT	DISULFID	52 162 BY SIMILARITY.
SQ	SEQUENCE	184 AA; 20877 MW; 172708 CN;
DB	4; Score	952; Match 76.4%; QryMatch 71.9%;
Matches	123; Conservative	20; Mismatches 17; I
Db	24	cdblphalslgntrvlmlggmrriisfscldkdrndfgpgvefdgng
QY	1	cdlpqtslgssrvtllmllaomrrislsclskdrdfgpgqeeef-ngn
Db	84	icqihflstdeaaawdesalldklytqlqqtleacslsgvvgv
QY	60	iioifnlfstrossaamdettlldketyllqqindleaxcvigovgvga
Db	144	riryfqialylekypspcaweivraeimrcfsasntlnqlqs 184
QY	120	RKYFORITLYIKKYSPCAWEWVRAETMRSFSLSTNLQES 160
RESULT	15	
ID	INA1 HORSE	STANDARD; PRT; 184 AA.
AC	P05003;	
DT	13-AUG-1987 (REL. 05, CREATED)	
DT	13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)	
DT	01-MAR-1989 (REL. 10, LAST ANNOTATION UPDATE)	
DE	INTERFERON ALPHA-1 PRECURSOR.	
DS	EQUUS CABALLUS (HORSE).	
OC	EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA	
OC	EUTHERIA; PERISSODACTYLIA.	
RN	[1]	
RP	SEQUENCE FROM N.A.	
RM	87053170	
RA	HIMMLER A., HAUPTMANN R., ADOLF G.R., SWETLY P.;	

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RL DNA 5:345-356(1986).
-!- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC - A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.
CC -!- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
CC EMBL: M14540; ECIEFNA.
DR PIR: A24912; IYHOAL.
DR HSPP: P01563; ZHIE.
DR PROSITE: PS00252; INTERFERON ALPHABETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 184 INTERFERON ALPHA-1.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
SQ SEQUENCE 184 AA; 20808 MW; 176176 CN;

DB 4; Score 950; Match 76.4%; QryMatch 77.7%; Pred. No. 9.49e-173;
Matches 123; Conservative 20; Mismatches 17; Indels 1; Gaps 1;

Db 24 cdplphthelgntrvlmlgmmrispsfclndrdnfgfqqevfdgnqfrkpaqiaavhet 83
||||:||||: ||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 1 CDLPQTHSLGSRRTLMILAQMRRISLFSCLKDRDRFGFFQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqlfhlfstgsgaawdeslldklytlygqlteleaclsgvqveetplmmedslav 143
||||:||||: ||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 60 IQQIFNLFSTKDSAAWDETLLDKFVTELYQQLNDLEACVIOQGVGVTEPLMKEDSILAV 119

Db 144 ryrftrialyqekkyscaweiavraeimrfsfstnlpqgs 184
||||:||||: ||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 120 RYFQRITLYLKEKKYSPCAWEVVRAEIMRFSFSLTNLQES 160

Search completed: Tue Aug 29 17:04:28 1995
Job time : 12 secs.

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WAPSA
***** (TM)

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MPsrch_pp protein - protein database search, using Smith-Waterman algorithm

Run on: Tue Aug 29 17:07:16 1995; MasPar time 3.89 Seconds
269.410 Million cell updates/sec

Tabular output not generated.

Title: >US-08-249-671-7

Description: (1:165) from US08249671.pep

Perfect Score: 1222

Sequence: 1 CDLPQPHSGSRRTMLLAQ.....EIMRSFSLSTNIQESLSRKE 165

Scoring table: PAM 150

Gap 11

Searched: 53402 seqs, 6354270 residues

Database:

a-geneseq
1 a-gen1
2 a-gen2
3 a-gen3
4 a-gen4
5 a-gen5
6 a-gen6
7 a-gen7
8 a-gen8
9 a-gen9
10 a-gen10

Statistics: Mean 31.243; Variance 138.822; scale 0.225

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query	Length	ID	Description	Pred. No.
1	1222	100.0	188	4	R20564 O-glycosylated IFN- α 1	1.34e-103
2	1222	100.0	188	3	R20549 Human IFN α 2C	1.34e-103
3	1222	100.0	166	2	P70329 Sequence of IFN- α 1	1.34e-103
4	1215	99.4	165	3	P50228 Interferon α -2	6.27e-103
5	1215	99.4	166	5	P20114 Human interferon- α 1	6.27e-103
6	1215	99.4	182	4	P10018 Sequence of interfero	6.27e-103
7	1215	99.4	166	3	P60037 Sequence encoded by s	6.27e-103
8	1210	99.0	175	4	P30163 Sequence encoded by a	1.88e-102

9	1210	99.0	166	4	P40022 Recombinant interfero	1.88e-102
10	1210	99.0	182	1	R05400 Hybrid Hu-IFN α 1A	1.88e-102
11	1210	99.0	188	5	P20103 Sequence encoded by 1	1.88e-102
12	1210	99.0	216	7	R38793 Natural human interfe	1.88e-102
13	1206	98.7	165	2	P70327 Recombinant α -2	4.54e-102
14	1205	98.6	166	7	R38792 Recombinant human α 1	5.66e-102
15	1204	98.5	164	2	P60119 Interferon- γ	7.06e-102
16	1201	98.3	165	3	P60221 Sequence of non-glyco	1.37e-101
17	1199	98.1	166	4	P40759 Human interferon α 1	2.12e-101
18	1198	98.0	187	5	P20007 Hybrid human leukocyt	2.64e-101
19	1190	97.4	219	2	R11356 Alkaline phosphatase-	1.54e-100
20	1124	92.0	473	3	P60797 Interferon- α 2	3.08e-94
21	1115	91.2	167	2	R11533 Consensus human leuc	2.22e-93
22	1113	91.1	167	2	R11532 Consensus human leuc	3.45e-93
23	1101	90.1	167	2	R11531 Consensus human leuc	4.87e-92
24	1080	88.4	150	2	R11355 Interferon α 1A	4.84e-90
25	1075	88.0	166	3	P60036 Sequence of new poly	1.45e-89
26	1075	88.0	189	4	P30230 Sequence of interfero	1.45e-89
27	1074	87.9	166	3	P60304 Sequence of interfero	1.81e-89
28	1074	87.9	167	4	P30224 Sequence of HuIFN- α 1	1.81e-89
29	1074	87.9	189	2	R07678 IFN- α 1A	1.81e-89
30	1074	87.9	167	2	R07679 IFN- α 1A	1.81e-89
31	1074	87.9	167	3	P60690 Sequence of an E. col	1.81e-89
32	1074	87.9	167	4	P30231 Sequence of interfero	1.81e-89
33	1068	87.4	162	3	P50168 Sequence of hybrid α 1	6.74e-89
34	1065	87.2	167	2	P70333 Sequence of IFN- ω 1	1.30e-88
35	1060	86.7	167	1	P80052 Sequence of human int	3.90e-88
36	1059	86.7	167	3	P60315 Sequence of hybrid ly	4.86e-88
37	1059	86.7	167	3	P60314 Sequence encoded by 1	4.86e-88
38	1056	86.4	182	4	P30003 Sequence of human α 1	9.38e-88
39	1054	86.3	166	3	P60101 Sequence of hybrid hu	1.45e-87
40	1054	86.3	166	1	P90187 Hybrid α 1A-interfer	1.45e-87
41	1054	86.3	168	3	P60318 Sequence of hybrid ly	1.45e-87
42	1052	86.1	166	1	P90190 Hybrid α 1A-interfer	2.25e-87
43	1052	86.1	167	3	P60222 Sequence of hybrid α 1	2.25e-87
44	1052	86.1	166	8	R42814 Lymphoblastoid interf	2.25e-87
45	1052	86.1	166	3	P60104 Sequence of hybrid hu	2.25e-87

ALIGNMENTS

RESULT 1
-ID R20564 standard; Protein; 188 AA.
AC R20564;
DT 19-MAY-1992 (first entry)
DE O-glycosylated IFN- α 2C.
KW Interferon; O-glycosylation.
FH Key Location/Qualifiers
FT Modified site 129
FT /label= O-glycosylation site
FT /note= "esp. by Gal-GalNAc (including its mono- or di-
FT sialylated derivs.) or Gal(Gal-GlcNAc)-GalNAc"
PN W09201055-A.
PD 23-JAN-1992.
PF 06-JUL-1991; E01266.
PR 10-JUL-1990; DE-021917.
PR 12-NOV-1990; DE-035877.
PA (BOEH) BOEHRINGER INGELHEIM.
PI Adolf G, Hummer A, Ahorn HU, Kalsner I, Maurer-Fogy I;
DR WPI; 92-056870/07.
DR N-PSDB; Q20731.
PT O-glycosylated α -interferon - used for treatment of
PT viral of tumour diseases
PS Disclosure; Fig 6(A+B); 104pp; English.

CC The glycosylated IFN's is used (partic. in a mixt. of at least
CC 2 of the alpha-2a, -2b or -2c forms) for treatment of viral and
CC tumour diseases.
CC See also Q20731-43 and Q20522-26.
SQ Sequence 188 AA;

DB 4; Score 1222; Match 100.0%; QryMatch 100.0%; Pred. No. 1.34e-103;
Matches 165; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 24 cdllpqlthslgsrrtllmlagmrriisfclskdrdrdfgfpgeefgnqfkaetipvlhemi 83
|||||
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISFLSCLKDRDRDFGFPQEEFGNQFQKAETIPVLHEMI 60

Db 84 qqifnlfstkdsaaawdetlldkfytelqqindleacviggvgtetplmkedsilavr 143
|||||
Qy 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQINDLEACVIGGVGTETPLMKEDSILAVR 120

Db 144 kyfqrtilylkekkykspcawevvraeimrfsfstnlqeslrsk 188
|||||
Qy 121 KYFQRITLYLKEKKYSPCAWEVVRAEIMRFSFSLTNLQESLSRKE 165

RESULT 2

ID R20549 standard; Protein; 188 AA.

AC R20549;

DT 21-APR-1992 (first entry)

DE Human IFNalpha 2C from pAD19b-IFN.

KW Interferon; O-glycosylation.

OS Homo sapiens.

FH Key Location/Qualifiers

FT Peptide 1..23

FT /label= sig_peptide

FT Protein 24..188

FT /label= mat_protein

PN DE4021917-A.

PD 16-JAN-1992.

PF 10-JUL-1990; 021917.

PR 10-JUL-1990; DE-021917.

PA (BOEH) BOEHRINGER INGELHEIM.

PI Himmler A, Adolf G;

DR WPI; 92-025485/04.

DR N-PSDB; Q20764.

PT O-glycosylated alpha-interferon, used as medicament - isolated

PT following secretion into conditioned medium of mammalian cells

PT contg. a suitable expression plasmid

PS Disclosure; Fig 6; 24pp; German.

CC Human embryonic kidney cells transformed with the human IFNalpha

CC 2C gene, contd. in pAD19b-IFN, are grown under suitable conditions.

CC O-glycosylated IFNalpha can then be isolated and purified from the

CC tissue culture supernatant.

CC See also Q20764-66 and Q22517-29.

SQ Sequence 188 AA;

DB 3; Score 1222; Match 100.0%; QryMatch 100.0%; Pred. No. 1.34e-103;
Matches 165; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 24 cdllpqlthslgsrrtllmlagmrriisfclskdrdrdfgfpgeefgnqfkaetipvlhemi 83
|||||
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISFLSCLKDRDRDFGFPQEEFGNQFQKAETIPVLHEMI 60

Db 84 qqifnlfstkdsaaawdetlldkfytelqqindleacviggvgtetplmkedsilavr 143
|||||
Qy 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQINDLEACVIGGVGTETPLMKEDSILAVR 120

Db 144 kyfqrtilylkekkykspcawevvraeimrfsfstnlqeslrsk 188
|||||
Qy 121 KYFQRITLYLKEKKYSPCAWEVVRAEIMRFSFSLTNLQESLSRKE 165

RESULT 3

ID P70329 standard; Protein; 166 AA.

AC P70329;

DT 20-MAY-1991 (first entry)

DE Sequence of IFN-alpha-2 (Arg).

KW Hybrid alpha/omega interferon; antiviral; virucide; antitumour;

KW cytostatic.

PN EP-236920-A.

PD 16-SEP-1987.

PF 04-MAR-1987; 103030.

PR 10-MAR-1986; DE-607835.

PA (BOEH) BOEHRINGER INGELHEIM.

PI Hauptmann R, Swetly P, Meindl P, Gunther A, Falkner E,

PI Bodo G, Maurer-Fogy I;

DR WPI; 87-258223/37.

DR N-PSDB; N70528.

PT New hybrid interferon prods. useful as antiviral agents - contg.

PT alpha and omega interferon fragments

PS Disclosure; pp4-6; 65pp; German.

CC Hybrid interferons comprising a fragment of an alpha-interferon and

CC a fragment of an omega-interferon, and their N-terminal Met or

CC N-formyl-Met derivs. and N-glycosylated derivs., are new. The hybrid

CC interferons are useful as antiviral and antitumour agents. Both IFN-

CC alpha-2(Arg) and omega-1-interferon has a 191-196 BglII restriction

CC site (see N70528 and N70529). In addition, IFN-alpha-2(Arg) has a

CC 451-456 BglII site.

SQ Sequence 166 AA;

DB 2; Score 1222; Match 100.0%; QryMatch 100.0%; Pred. No. 1.34e-103;
Matches 165; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 2 cdllpqlthslgsrrtllmlagmrriisfclskdrdrdfgfpgeefgnqfkaetipvlhemi 61
|||||
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISFLSCLKDRDRDFGFPQEEFGNQFQKAETIPVLHEMI 60

Db 62 qqifnlfstkdsaaawdetlldkfytelqqindleacviggvgtetplmkedsilavr 121
|||||
Qy 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQINDLEACVIGGVGTETPLMKEDSILAVR 120

Db 122 kyfqrtilylkekkykspcawevvraeimrfsfstnlqeslrsk 166
|||||
Qy 121 KYFQRITLYLKEKKYSPCAWEVVRAEIMRFSFSLTNLQESLSRKE 165

RESULT 4

ID P50228 standard; Protein; 165 AA.

AC P50228;

DT 24-NOV-1991 (first entry)

DE Interferon alpha-2.

KW Interferon alpha-2; hybrid protein; crossover region.

FH Key Location/Qualifiers

FT Region 62..65

FT /label= crossover region A

FT Region 87..94

FT /label= crossover region B

FT Region 87..100

FT /label= crossover region C

FT Region 87..105

FT /label= crossover region D

FT Region 108..112
 FT /label= crossover region E
 FT Region 113..116
 FT /label= crossover region F
 FT Region 125..130
 FT /label= crossover region G
 FT Region 132..150
 FT /label= crossover region H
 FT Region 152..153
 FT /label= crossover region I
 FT Region 154..160
 FT /label= crossover region J
 FT Region
 PN EP-141484-A.
 PD 15-MAY-1985.
 PF 05-JUN-1984; 303787.
 PR 10-JUN-1983; GB-015980.
 PA (BIOJ) Biogen NV.
 PI Weismann C, Weber H.
 DR WPI; 85-117654/20.
 DR N-PSDB; N50272.
 PT New hybrid DNA sequences and hybrid polypeptide(s) - useful in prodn.
 FT of interferon(s), lymphokines, viral antigens, etc.
 PS Disclosure; Fig. 6A-C; 47pp; English.
 CC The DNA encoding interferon alpha-2 may be fused to a second
 CC coding sequence, eg for animal or human alpha, beta or gamma-
 CC interferons, lymphokines, foot-and-mouth disease antigens, to form a
 CC hybrid DNA. The DNA must be fused to the second DNA sequence in the
 CC same reading frame to maintain a constant reading frame through a
 CC crossover region common to both sequences. The hybrid sequences are
 CC obtd. without the need for chance availability of restriction sites
 CC to be combined. Sequential deletions to give prods. with modified
 CC properties, activity and specificity are reliable.
 SQ Sequence 165 AA;
 DB 3; Score 1215; Match 99.4%; QryMatch 99.4%; Pred. No. 6,27e-103;
 Matches 164; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 Db 1 cdldpqtshlgsrrtllmllagmrrielsfclkdhrdfgfpqeeefgnqfkaetipvlhemi 60
 Qy 1 CDLPQTHSLGSRRTLLMLLAQMRRIELSFCLKDRDFGFPQEEFGNQFKAETIPVLHEMI 60
 Db 61 qqifnlfstkdssaaawdetllldkfytelylqqlndleacvlgvgvttetplmkedsilavr 120
 Qy 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQQLNDLEACVIGVGVTETPLMKEDSILAVR 120
 Db 121 kyfqrtilylkekyspcawevvraeimsrfselstnlqeslrsk 165
 Qy 121 KYFQRITLYLKEKYSPCAWEVVRAEIMRSFSLSTNLQESLSRKS 165
 RESULT 5
 ID P20114 standard; Protein; 166 AA.
 AC P20114;
 DT 21-SEP-1992 (first entry)
 DE Human interferon-alpha-2.
 KW Interferon-alpha-2.
 OS Synthetic.
 PN EP-62971-A.
 PD 20-OCT-1982.
 PF 15-MAR-1982; 301309.
 PR 27-MAR-1981; GB-009678.
 PR 30-MAR-1981; GB-009919.
 PR 22-APR-1981; GB-012446.

PR 07-SEP-1981; GB-026979.
 PA (ICIL) IMPERIAL CHEM INDS PLC.
 PA (UYLE-) UNIV OF LEICESTER.
 PI Atherton KT, DeMaeyer E, Edge MD, Markham AF, Meacock PA;
 PI Windass JD.
 DR WPI; 82-90772E/43 (90772E).
 DR N-PSDB; N20109.
 PT Genetically modified microorganisms - capable of expressing as
 PT metabolite a cpd. having interferon activity.
 PS Disclosure; Fig 2; 70pp; English.
 CC Interferon may be expressed from a synthetic gene and may be used
 CC as a virucide and antitumor agent or as an immunostimulant.
 SQ Sequence 166 AA;
 DB 5; Score 1215; Match 99.4%; QryMatch 99.4%; Pred. No. 6,27e-103;
 Matches 164; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 Db 2 cdldpqtshlgsrrtllmllagmrrielsfclkdhrdfgfpqeeefgnqfkaetipvlhemi 61
 Qy 1 CDLPQTHSLGSRRTLLMLLAQMRRIELSFCLKDRDFGFPQEEFGNQFKAETIPVLHEMI 60
 Db 62 qqifnlfstkdssaaawdetllldkfytelylqqlndleacvlgvgvttetplmkedsilavr 121
 Qy 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQQLNDLEACVIGVGVTETPLMKEDSILAVR 120
 Db 122 kyfqrtilylkekyspcawevvraeimsrfselstnlqeslrsk 166
 Qy 121 KYFQRITLYLKEKYSPCAWEVVRAEIMRSFSLSTNLQESLSRKS 165
 RESULT 6
 ID P10018 standard; Protein; 182 AA.
 AC P10018;
 DT 13-AUG-1992 (first entry)
 DE Sequence of interferon (IFN) -alpha-2 encoded by the Hif-II-206
 DE fragment of culture HcIF-G.
 KW Anti-viral agent; anti-cancer agent; therapy; tumour.
 OS Homo sapiens.
 FH Key Location/Qualifiers
 FT Peptide 1..17
 PN EP-32134-A.
 PD 15-JUL-1981.
 PF 07-JAN-1981; 300050.
 PR 08-JAN-1980; EP-300079.
 PR 03-APR-1980; EP-301100.
 PR 02-OCT-1980; GB-031737.
 PA (BIOJ) BIOGEN NV.
 PI Weismann C;
 DR WPI; 81-53697D/30.
 DR N-PSDB; N10011.
 PT DNA sequences coding for interferon-like polypeptide(s) - useful
 PT as antiviral or antitumour agents
 PS Claim 22; Fig 12-16; 136pp; English.
 CC The inventors claim DNA sequences coding for interferon-like
 CC polypeptide(s). The DNA sequences pref. encode IFN-alpha type 1, 2,
 CC 4a and 4b. Pref. DNA sequences which hybridise to the inserts of 2-
 CC pBR322(Pst)/HcIF-4c, 2-pBR322(Pst)/HcIF-2h, 2-pBR322(Pst)/HcIF-SN35,
 CC 2-pBR322(Pst)/HcIF-SN42 and 2pKT287(Pst)/HcIF-2h-AH6 comprise
 CC 2-pBR322(Pst)/HcIF-II-206, 2-pBR322(Pst)/HcIF-SN35-AHL6, and
 CC Hif-chrl, -3, -12, -13, -16-1, -26, -30, -35, -19 and -27. Pref.
 CC recombinant DNA molecules are C8-IFN-alpha-1, C8-IFN-alpha-2,
 CC IAC-AUG(alpha-2) and beta-lac-AUG(alpha-2). A comparison of the
 CC nucleotide sequence of the coding region of HcHIF-35HB-alpha and
 CC that of Hif-2h (coding region) reveals that they are identical.

SQ Sequence 182 AA;

DB 4; Score 1215; Match 99.4%; QryMatch 99.4%; Pred. No. 6.27e-103; Matches 164; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Db 18 cdlpqtshlgsrrtllmllagmrriisfclkdhrdfigfpqeeefgnqfkaetipvlhemi 77
 QY 1 CDLPQTHSLGSRRTLLMLAQMRRIISLFSCLKDRDRFGFPQEEFGNQFQKAETIPVLHEMI 60

Db 78 qqifnlfdksaawdetllldkfytelyqqldndleacviggvgtetplmkedsilavr 137
 QY 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQLDNDLEACVIGVGVTETPLMKEDSILAVR 120

Db 138 kyfqrtilylkekyspcawevvraeimsfslstnlqeslrke 182
 QY 121 KYFQRITILYLEKKYSPCAWEVVRAEIMRSFSLSTNLQESLSRSKE 165

RESULT 7

ID P60037 standard; Protein; 166 AA.

AC P60037;

DT 31-JUL-1991 (first entry)

DE Sequence encoded by synthetic human interferon-alpha 2

DE (hIFN-alpha-2) gene

KW Antiviral; interferon purification.

OS Homo sapiens.

PN EP-194006-A.

PD 10-SEP-1986.

PF 17-JAN-1986; 300304.

PR 01-FEB-1985; GB-002605.

PR 25-JUN-1985; US-748558.

PA (ICIL) IMPERIAL CHEM INDOS PLC.

PI Camble R, Edge MD;

DR WPI; 86-240111/37.

DR N-PSDB; N60045.

PT New polypeptide analogues of human interferon alpha2 - with high antiviral activity, and DNA coding sequences

PS Disclosure; Figure 1; 78pp; English.

CC 8 cpds. are specifically claimed, e.g. IFN-alpha2 (4-155); (Leu-59)-IFN-alpha2 or (Ser-29, 138)-IFN-alpha2

SQ Sequence 166 AA;

DB 3; Score 1215; Match 99.4%; QryMatch 99.4%; Pred. No. 6.27e-103; Matches 164; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Db 2 cdlpqtshlgsrrtllmllagmrriisfclkdhrdfigfpqeeefgnqfkaetipvlhemi 61
 QY 1 CDLPQTHSLGSRRTLLMLAQMRRIISLFSCLKDRDRFGFPQEEFGNQFQKAETIPVLHEMI 60

Db 62 qqifnlfdksaawdetllldkfytelyqqldndleacviggvgtetplmkedsilavr 121
 QY 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQLDNDLEACVIGVGVTETPLMKEDSILAVR 120

Db 122 kyfqrtilylkekyspcawevvraeimsfslstnlqeslrke 166
 QY 121 KYFQRITILYLEKKYSPCAWEVVRAEIMRSFSLSTNLQESLSRSKE 165

RESULT 8

ID P30163 standard; peptide; 175 AA.

AC P30163;

DT 14-JUN-1992 (first entry)

DE Sequence encoded by a modified BamHI human interferon-alpha gene fragment.

KW Yeast expression vector; Saccharomyces cerevisiae; promoter;

OS glycolytic enzyme; phosphoglycerate kinase.

PN EP-73635-A.

PD 09-MAR-1983.

PF 17-AUG-1982; 408826.

PR 25-AUG-1981; GB-025934.

PR 23-MAR-1982; GB-008422.

PR 16-JUN-1982; GB-017496.

PA (KING/) KINGSMAN A J.

PA (CELL-) CELLS TECH LTD.

PI Kingsman S M; Kingsman A J.

DR WPI; 83-25586K/11.

DR N-PSDB; N30062.

PT Yeast expression vector for transforming yeasts - useful in economic prodn. of polypeptide(s) esp. human interferon-alpha Example; Fig 16; 45pp; English.

CC The inventors claim a yeast expression vector comprising a yeast selective marker, a yeast replication origin and a yeast promoter positioned relative to a unique restriction site. The yeast CC coding for glycolytic enzyme, esp. of the yeast PCK gene located upstream of the unique restriction site and at least part of the 3' CC region of the PCK gene located downstream of the site. The vector CC is used to express a polypeptide, eg. human interferon-alpha.

SQ Sequence 175 AA;

DB 4; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 1.88e-102; Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Db 11 cdlpqtshlgsrrtllmllagmrriisfclkdhrdfigfpqeeefgnqfkaetipvlhemi 70
 QY 1 CDLPQTHSLGSRRTLLMLAQMRRIISLFSCLKDRDRFGFPQEEFGNQFQKAETIPVLHEMI 60

Db 71 qqifnlfdksaawdetllldkfytelyqqldndleacviggvgtetplmkedsilavr 130
 QY 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQLDNDLEACVIGVGVTETPLMKEDSILAVR 120

Db 131 kyfqrtilylkekyspcawevvraeimsfslstnlqeslrke 175
 QY 121 KYFQRITILYLEKKYSPCAWEVVRAEIMRSFSLSTNLQESLSRSKE 165

RESULT 9

ID P40022 standard; Protein; 166 AA.

AC P40022;

DT 30-NOV-1991 (first entry)

DE Recombinant interferon-alpha A.

KW Recombinant interferon-alpha A; antiviral.

PN EP-128467-A.

PD 19-DEC-1984.

PF 30-MAY-1984; 106214.

PR 01-JUN-1983; US-499964.

PA (HOFF) F Hoffmann-La Roche & Co.

PI DeChiara TM, Tarnowski SJ Jr.

DR WPI; 84-313909/51.

DR N-PSDB; N40013.

PT New antiviral interferon polypeptide(s) free from oligomers - with cysteine residues replaced by other amino acid residues.

PS Disclosure; Fig. 1; 46pp; English.

CC The protein is recombinant interferon-alpha A (rIFN alpha). The CC fragment comprising amino acids 3-166 is claimed. In this CC protein, Cys 1 may be replaced by a glycine residue, and Cys 98, CC 99 or 100 may be replaced by Ser. These polypeptides have antiviral

CC activity, but unlike prior interferons they are free from
 CC oligomers, other than dimers, and they pref. consist of stable
 CC monomers only.
 SQ Sequence 166 AA;

DB 4; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 1.88e-102;
 Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Db 2 cdipqthslgsrrtllmllagmrkislfcslkdrhdgfpgeefgnqfkaetipvlhemi 61

QY 1 CDLPQTHSLGSRRTLLMLLAQMRRISLFSCLKDRDDFGFPQEEFCNQFQKAETIPVLHEMI 60

Db 62 qqifnlfstkdsaaawdetllldkfytelylqqldleacvlgvgvgtetplmkedsilavr 121

QY 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQLDLEACVIGVGVTETPLMKEDSILAVR 120

Db 122 kyfqrtilylkekyspcawevvraeimrfsisltnlqeslrake 166

QY 121 KYFQRITLYLKEKYSPCAWEVVRAEIMRFSISLSTNLQESLSRKE 165

RESULT 10
 ID R05400 standard; protein; 182 AA.

AC R05400;

DT 11-OCT-1990 (first entry)

DE Hybrid Hu-IFN alpha A/gamma.

KW Hu-IFN; interferon; tumour; cancer; ds.

OS Homo sapiens.

PN EP-372707-A.

PD 13-JUN-1990.

PF 27-OCT-1989; 311108.

PR 28-OCT-1988; US-264271.

PA (PEST/) Pestka S.

PI Pestka S;

DR WPI; 90-180507/24.

DR N-PSDB; Q04744.

PT Phosphorylated modified proteins, including modified interferon(s) -

PT used in diagnostic and therapeutic applications. eg.

PT pharmacokinetic studies and tumour treatment.

PS Claim 8; Fig 3; 47pp; English.

CC Hybrid IFN-gamma and IFN-alpha can be phosphorylated to a high

CC radio specific activity which IFN-alpha alone cannot.

CC By introducing phosphorylatable groups, the proteins may be used in

CC pharmacokinetic studies and diagnostic applications, by attaching 32P

CC labels to the incorporated sites.

SQ Sequence 182 AA;

DB 1; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 1.88e-102;
 Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Db 2 cdipqthslgsrrtllmllagmrkislfcslkdrhdgfpgeefgnqfkaetipvlhemi 61

QY 1 CDLPQTHSLGSRRTLLMLLAQMRRISLFSCLKDRDDFGFPQEEFCNQFQKAETIPVLHEMI 60

Db 62 qqifnlfstkdsaaawdetllldkfytelylqqldleacvlgvgvgtetplmkedsilavr 121

QY 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQLDLEACVIGVGVTETPLMKEDSILAVR 120

Db 122 kyfqrtilylkekyspcawevvraeimrfsisltnlqeslrake 166

QY 121 KYFQRITLYLKEKYSPCAWEVVRAEIMRFSISLSTNLQESLSRKE 165

RESULT 11

ID P20103 standard; Protein; 188 AA.

AC P20103;

DT 10-AUG-1992 (first entry)

DE Sequence encoded by leukocyte interferon LeIF A cDNA.

KW Viral infection; therapy; malignancy.

OS Homo sapiens.

FH Key Location/Qualifiers

FT Peptide 1..23

FT /label= signal

PN CB2079291-A.

PD 20-JAN-1982.

PF 01-JUL-1981; 120279.

PR 01-JUL-1980; US-164986.

PR 08-SEP-1980; US-184909.

PR 10-NOV-1980; US-205578.

PR 21-APR-1981; US-256204.

PA (HOFF) HOFFMANN-LA ROCHE AG.

PA (GENE-) GENENTECH INC.

PI Goeddel DYN, Pestka S;

DR WPI; 82-04460E/03.

DR N-PSDB; N20090.

PT Mature human leukocyte interferon polypeptide(s) - prepd. from

PT microbes transformed with appropriate DNA sequences

PS Disclosure; Fig 4; 20pp; English.

CC The inventors claim a polypeptide comprising the AA sequence of a

CC mature human LeIF and a DNA sequence encoding it. LeIF A-D, F, H-J

CC and encoding DNA are specifically claimed. They are natural allelic

CC variations. LeIF is isolated from the leukocytes of humans with

CC chronic myelogenous leukaemia, induced to produce interferon with

CC Sendai or Newcastle disease virus; esp. the cell line KG-1.

SQ Sequence 188 AA;

DB 5; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 1.88e-102;
 Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Db 24 cdipqthslgsrrtllmllagmrkislfcslkdrhdgfpgeefgnqfkaetipvlhemi 83

QY 1 CDLPQTHSLGSRRTLLMLLAQMRRISLFSCLKDRDDFGFPQEEFCNQFQKAETIPVLHEMI 60

Db 84 qqifnlfstkdsaaawdetllldkfytelylqqldleacvlgvgvgtetplmkedsilavr 143

QY 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQLDLEACVIGVGVTETPLMKEDSILAVR 120

Db 144 kyfqrtilylkekyspcawevvraeimrfsisltnlqeslrake 188

QY 121 KYFQRITLYLKEKYSPCAWEVVRAEIMRFSISLSTNLQESLSRKE 165

RESULT 12

ID R38793 standard; Protein; 216 AA.

AC R38793;

DT 21-JAN-1994 (first entry)

DE Natural human interferon-alpha.

KW IFN-alpha; hIFN-alpha.

OS Homo sapiens.

FH Key Location/Qualifiers

FT Region 26

FT /note= "Natural mature human alpha-interferon N-terminal"

FT Region 190

FT /note= "Natural mature human alpha-interferon C-terminal"

FT Region 191

FT /note= "corresponds to termination codon"

FT Region 211

FT /note= "corresponds to termination codon"

PN EP-553494-A.
 PD 04-AUG-1993.
 PF 29-DEC-1992; 122084.
 PR 31-DEC-1991; KR-025878.
 PR 31-DEC-1991; KR-025879.
 PR 28-JAN-1992; KR-001155.
 PA (LUCK-) LUCKY LTD.
 PI Bae TO, Chang HJ, Cho JM, Park SJ, Park YW.
 DR WPI; 93-244548/31.
 DR N-PSDB; Q47153.
 PT Recombinant human alpha interferon and corresp. gene - for
 PT efficient expression in yeast, and purificn. process
 PS Disclosure; Fig 1B; 30pp; English.
 CC The sequence is that of natural human interferon-alpha.
 SQ Sequence 216 AA;

 DB 7; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 1.88e-102;
 Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

 Db 26 cdlpqtshlgrrtllmllagmrkislfcslkdrhdfgfpqeeqngqkaetipvlhemi 85
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISLFCIKDRDRFGFPQEEFGNQFQKAETIPVLHEMI 60

 Db 86 qqifnlfstkdsaaawdetlldkfytelyqqindleacviggvgtetplmkedsilavr 145
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQINDLEACVIGGVGTETPLMKEDSILAVR 120

 Db 146 kyfqrtilylkekyspcawevvraeimrfsfstnlqeslrsk 190
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 121 KYFQRITLYLKEKYSPCAEVVRRAEIMRFSFSLTNLQESLSRKE 165

RESULT 13
 ID P70327 standard; protein; 165 AA.
 AC P70327;
 DT 06-FEB-1991 (first entry)
 DE Recombinant alpha-2 interferon analogue.
 KW Alpha-interferon analogue; proteolysis resistance; IFN
 FH Key Location/Qualifiers
 FT Misc difference 22...22
 FT /Label= T, S, N, Q, G
 PN EP-240224-A.
 PD 07-OCT-1987.
 PF 24-MAR-1987; 302519.
 PR 31-MAR-1987; US-845937.
 PA (INTE) Interferon Sci Inc.
 PI O'Loughlin J T
 DR WPI; 87-279540/40.
 PT New active alpha-interferon analogues resistant to proteolysis - at
 PT positions 22 and 23, which are expressed intact in host cells,
 PT especially Saccarhrynces cerevisiae.
 PS Disclosure; Fig. 2; 20pp; English.
 CC The recombinant alpha-interferon analogue lacks the dibasic
 CC diaminopeptidase recognition site at positions 22 and 23 which are
 CC present in native alpha-IFN, while still retaining alpha-IFN activity.
 CC Oligonucleotides are used to direct mutagenesis.
 SQ Sequence 165 AA;

 DB 2; Score 1206; Match 98.8%; QryMatch 98.7%; Pred. No. 4.54e-102;
 Matches 163; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

 Db 1 cdlpqtshlgrrtllmllagmrkislfcslkdrhdfgfpqeeqngqkaetipvlhemi 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISLFCIKDRDRFGFPQEEFGNQFQKAETIPVLHEMI 60

Db 61 qqifnlfstkdsaaawdetlldkfytelyqqindleacviggvgtetplmkedsilavr 120
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQINDLEACVIGGVGTETPLMKEDSILAVR 120

 Db 121 kyfqrtilylkekyspcawevvraeimrfsfstnlqeslrsk 165
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 121 KYFQRITLYLKEKYSPCAEVVRRAEIMRFSFSLTNLQESLSRKE 165

RESULT 14
 ID R38792 standard; Protein; 166 AA.
 AC R38792;
 DT 21-JAN-1994 (first entry)
 DE Recombinant human alpha Interferon.
 KW Yeast-preferred codons; efficient expression; high yield;
 KW IFN-alpha.
 OS Homo sapiens.
 PN EP-553494-A.
 PD 04-AUG-1993.
 PF 29-DEC-1992; 122084.
 PR 31-DEC-1991; KR-025878.
 PR 31-DEC-1991; KR-025879.
 PR 28-JAN-1992; KR-001155.
 PA (LUCK-) LUCKY LTD.
 PI Bae TO, Chang HJ, Cho JM, Park SJ, Park YW.
 DR WPI; 93-244548/31.
 DR N-PSDB; Q47152.
 PT Recombinant human alpha interferon and corresp. gene - for
 PT efficient expression in yeast, and purificn. process
 PS Claim 9; Fig 1A; 30pp; English.
 CC The sequence is that encoded by a recombinant human alpha-interferon
 CC gene which was designed to have yeast-preferred codons and to minimise
 CC the formation of mRNA secondary structure, so that transcription
 CC and translation efficiency is increased. This enables efficient
 CC expression in yeast of the alpha-interferon.
 SQ Sequence 166 AA;

 DB 7; Score 1205; Match 98.2%; QryMatch 98.6%; Pred. No. 5.66e-102;
 Matches 162; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

 Db 2 cdlpqtshlgrrtllmllagmrkislfcslkdrhdfgfpqeeqngqkaetipvlhemi 61
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISLFCIKDRDRFGFPQEEFGNQFQKAETIPVLHEMI 60

 Db 62 qqifnlfstkdsaaawdetlldkfytelyqqindleacviggvgtetplmkedsilavr 121
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 61 QQIFNLFSTKDSAAWDETLLDKFYTELYQQINDLEACVIGGVGTETPLMKEDSILAVR 120

 Db 122 kyfqrtilylkekyspcawevvraeimrfsfstnlqeslrsk 166
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 121 KYFQRITLYLKEKYSPCAEVVRRAEIMRFSFSLTNLQESLSRKE 165

RESULT 15
 ID P60119 standard; protein; 164 AA.
 AC P60119;
 DT 10-JUN-1991 (first entry)
 DE Interferon-gamma.
 KW Interferon-gamma; virucide; antitumor.
 FH Key Location/Qualifiers
 FT Disulfide-bond 1..98
 FT Disulfide-bond 29..138
 PN EP-203382-A.

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PD 03-DEC-1986.
PF 25-APR-1986; 105722.
PR 27-APR-1985; DE-515336.
PA (BOEH ) BOEHRINGER INGELHEIM.
PI Bodo G, Maurer-Fogy I, Falkner E, Linder SJ.
DR WPI; 86-320384/49.
PT High purity, non immunogenic recombinant alpha interferon prodn.
PT - by harvesting cells as specific growth stage, protein extn. and
PT three stage chromatography purificn.
PS Claim 1; Page 20; 33pp; Ge.
CC The recombinant protein is expressed in E. coli, and is useful for
CC treating virus infections and tumours.
SQ Sequence 164 AA,

DB 2; Score 1204; Match 99.4%; QryMatch 98.5%; Pred. No. 7.06e-102;
Matches 164; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

Db 1 cdllpqtshlgsrrtlmllagmrriisfscldkrrdfgpgqeeifgnqgkaetipvlhemi 60
   ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Qy 1 CDLPQTHSLGSRRTLMLLAQMRRIISLFSCLKDRRDFGFPQEEFGNQFQKAETIPVLHEMI 60

Db 61 qqifnlfstkdsaaawdetlldkfytelyqqldleacviqgvgtetpmlkedsilavr 120
   ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Qy 61 QQIFNLFSTKDSAAAWDETLLDKFYTELYQQLDLEACVIQGVGTETPLMKEDSILAVR 120

Db 121 kyfqrtilylkekyspcawev-raeimrfsfstnlqeslrake 164
   ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Qy 121 KYFQRITLYLKEKYSPCMEVVRRAEIMRFSFSSTNLQESLSRSKE 165

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Search completed: Tue Aug 29 17:07:31 1995
Job time : 15 secs.

 W P S Q L P A (TM)

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MParch_pp protein - protein database search, using Smith-Waterman algorithm

Run on: Tue Aug 29 17:06:04 1995; MasPar time 4.84 Seconds
 522.894 Million cell updates/sec
 Tabular output not generated.

Title: >US-08-249-671-7
 Description: (1:165) from US08249671.pep
 Perfect Score: 1222
 Sequence: 1 CDLPQTHSIGSRRTIMLLAQ.....EIMRSFSLTNQESLSRSKE 165

Scoring table: PAM 150
 Gap 11

Searched: 43470 seqs, 15335248 residues

Database: swiss-prot31
 1 SPT1
 2 SPT2
 3 SPT3
 4 SPT4
 5 SPT5
 6 SPT6
 7 SPT7
 8 SPT8

Statistics: Mean 44.731; Variance 85.676; scale 0.522

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description	Pred. No.
1	1210	99.0	188	4	INA2_HUMAN INTERFERON ALPHA-2 PR	2.34e-229
2	1074	87.9	189	4	INA5_HUMAN INTERFERON ALPHA-5 PR	1.12e-199
3	1050	85.9	189	4	INAD_HUMAN INTERFERON ALPHA-14 P	1.88e-194
4	1049	85.8	189	4	INA6_HUMAN INTERFERON ALPHA-6 PR	3.09e-194
5	1030	84.3	189	4	INAA_HUMAN INTERFERON ALPHA-4 PR	4.18e-190
6	1027	84.0	189	4	INAK_HUMAN INTERFERON ALPHA-21 P	1.88e-189
7	1026	84.0	189	4	INAG_HUMAN INTERFERON ALPHA-17 P	3.10e-189
8	1025	83.9	189	4	INAF_HUMAN INTERFERON ALPHA-16 P	5.11e-189
9	1017	83.2	189	4	INAA_HUMAN INTERFERON ALPHA-10 P	2.79e-187
10	1012	82.8	189	4	INA8_HUMAN INTERFERON ALPHA-8 PR	3.40e-186

11	1012	82.8	189	4	INA7_HUMAN INTERFERON ALPHA-7 PR	3.40e-186
12	1010	82.7	189	4	INA1_HUMAN INTERFERON ALPHA-1/13	9.25e-186
13	953	78.0	184	4	INA4_HORSE INTERFERON ALPHA-4 PR	2.13e-173
14	952	77.9	184	4	INA4_HORSE INTERFERON ALPHA-2 PR	3.50e-173
15	950	77.7	184	4	INA1_HORSE INTERFERON ALPHA-1 PR	9.49e-173
16	950	77.7	184	4	INA3_HORSE INTERFERON ALPHA-3 PR	9.49e-173
17	812	66.4	189	4	INAA_BOVIN INTERFERON ALPHA-A PR	5.59e-143
18	808	66.1	189	4	INAB_BOVIN INTERFERON ALPHA-B PR	4.04e-142
19	805	65.9	189	4	INA5_MOUSE INTERFERON ALPHA-5 PR	1.78e-141
20	804	65.8	189	4	INA1_BOVIN INTERFERON ALPHA-1 PR	2.92e-141
21	804	65.8	189	4	INAC_BOVIN INTERFERON ALPHA-C PR	2.92e-141
22	798	65.3	189	4	INA1_MOUSE INTERFERON ALPHA-1 PR	5.67e-140
23	792	64.8	189	4	INAD_BOVIN INTERFERON ALPHA-D PR	1.10e-138
24	782	64.0	190	4	INA2_MOUSE INTERFERON ALPHA-2 PR	1.53e-136
25	775	63.4	192	4	INA1_RAT INTERFERON ALPHA-1 PR	4.84e-135
26	770	63.0	190	4	INA7_MOUSE INTERFERON ALPHA-7 PR	5.70e-134
27	767	62.8	195	4	INO1_HUMAN INTERFERON OMEGA-1 PR	2.50e-133
28	763	62.4	190	4	INA9_MOUSE INTERFERON ALPHA-9 PR	1.80e-132
29	760	62.2	189	4	INA8_MOUSE INTERFERON ALPHA-8 PR	7.89e-132
30	760	62.2	189	4	INA6_MOUSE INTERFERON ALPHA-6 PR	7.89e-132
31	721	59.0	195	4	INO2_HORSE INTERFERON OMEGA-2 PR	1.70e-123
32	689	56.4	194	4	INA_FELCA INTERFERON PRECURSOR	1.11e-116
33	686	56.1	186	4	INA4_MOUSE INTERFERON ALPHA-4 PR	4.83e-116
34	677	55.4	195	4	INO1_BOVIN INTERFERON OMEGA-1 PR	3.95e-114
35	675	55.2	195	4	IND1_HUMAN INTERFERON DELTA-1 PR	1.05e-113
36	673	55.1	195	7	TP11_BOVIN TROPHOBLAST PROTEIN-1	2.80e-113
37	668	54.7	195	7	TP12_BOVIN TROPHOBLAST PROTEIN-1	3.22e-112
38	663	54.3	195	7	TP13_BOVIN TROPHOBLAST PROTEIN-1	3.71e-111
39	652	53.4	195	4	INO1_HORSE INTERFERON OMEGA-1 PR	7.97e-109
40	621	50.8	195	7	TP1_SHEEP TROPHOBLAST PROTEIN-1	2.88e-102
41	448	36.7	186	4	INB2_BOVIN INTERFERON BETA-2 PRE	3.37e-66
42	402	32.9	186	4	INB3_BOVIN INTERFERON BETA-3 PRE	8.13e-57
43	401	32.8	187	4	INB_HUMAN INTERFERON BETA PRECU	1.30e-56
44	377	30.9	186	4	INB_HORSE INTERFERON BETA PRECU	9.12e-52
45	332	27.2	186	4	INB1_BOVIN INTERFERON BETA-1 PRE	8.64e-43

ALIGNMENTS

RESULT 1	INA2_HUMAN	STANDARD;	PRT;	188 AA.
AC	P01563; P01564;			
DT	21-JUL-1986 (REL. 01, CREATED)			
DT	21-JUL-1986 (REL. 01, LAST SEQUENCE UPDATE)			
DT	01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)			
DE	INTERFERON ALPHA-2 PRECURSOR (INTERFERON ALPHA-A) (LEIF A).			
GN	IFNA2.			
OS	HOMO SAPIENS (HUMAN).			
OC	EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;			
OC	EUTHERIA; PRIMATES.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RM	81052322			
RA	GOEDDEL D.V., YELVERTON E., ULLRICH A., HEYNEKER H.L., MIOZZARI G.,			
RA	HOLMES W., SEEBURG P.H., DULL T.J., MAY L., STEBBING N., CREA R.,			
RA	MAEDA S., MCCANDLISH R., SIOMA A., TABOR J.M., GROSS M.,			
RA	FAMILLETTI P.C., PESTKA S.;			
RL	NATURE 287:411-416(1980).			
RL	[2]			
RP	SEQUENCE FROM N.A.			
RM	81148795			
RA	GOEDDEL D.V., LEUNG D.W., DULL T.J., GROSS M., LAWN R.M.,			
RA	MCCANDLISH R., SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.W.;			
RL	NATURE 290:20-26(1981).			


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[3]
RN SEQUENCE FROM N.A.
RP
RM 87060261
RA LAMN R.M., GROSS M., HOUCK C.M., FRANK A.E., GRAY P.V.,
RA GOEDDEL D.V.;
RL PROC. NATL. ACAD. SCI. U.S.A. 78:5435-5439(1981).
[4]
RN SEQUENCE OF 7-188 FROM N.A.
RP
RM 81015442
RA STREILI M., NAGATA S., WEISSMANN C.;
RL SCIENCE 209:1343-1347(1980).
[5]
RN SEQUENCE OF 24-112 AND 136-188.
RP
RM 81052321
RA ALLEN G., FANTES K.H.;
RL NATURE 287:408-411(1980).
[6]
RN DISULFIDE BONDS.
RP
RM 81123083
RA METZEL R.;
RL NATURE 289:606-607(1981).
[7]
RN 3D-STRUCTURE MODELLING.
RP
RM 94052087
RA MURGOLO N.J., WINDSOR W.T., HRUZA A., REICHERT P., TSARBOPOULOS A.,
RA BALDWIN S., HUANG E., PRAMANIK B., EALICK S., TROTTA P.P.;
RL PROTEINS 17:62-74(1993).
CC -/- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.
CC -/- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; V00548; HSIFR6.
DR EMBL; V00549; HSIFR7.
DR PIR; A01827; IVHUA2.
DR PIR; A01828; IVHUA3.
DR PDB; 2HIE; 31-AUG-94.
DR MIM; 147562; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON_ALPHA_BETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL; 3D-STRUCTURE.
FT SIGNAL 1 23
FT CHAIN 24 188 INTERFERON ALPHA-2.
FT DISULFID 24 121
FT DISULFID 52 161
FT CONFLICT 46 46 K -> R (IN REF. 3 AND 4).
SQ SEQUENCE 188 AA; 21550 MW; 189049 CN;

DB 4; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 2.34e-229;
Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Db 24 cdlpqthslgsrrtlllmaqmckialfscldkrdhdfgfpqeeefgnqfkaetipvlhemi 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRISLFSCLKORRDFGFPQEEFGNQFKAETIPVLHEMI 60
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

Db 84 qqifnlfstkdssawdetllldkfyetelyqqindleacviqgvgtetpmlkedsilavr 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 61 QQIFNLFSTKSSAAWDETLLDKFYETELYQQINDLEACVIGVGTETPLMKEDSILAVR 120
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

Db 144 kyfqrityllylekkyspcawevvraeimsrfsfstnlqeslsrke 188
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 121 KYFQRITYLYLEKKYSPCAWEVVRRAEIMRSFSLSTNLQESLSRKE 165
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

RESULT 2
ID INAS_HUMAN STANDARD; PRT; 189 AA.

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AC P01569;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-5 PRECURSOR (INTERFERON ALPHA-G) (LEIF G) (INTERFERON
DE ALPHA-61).
GN IFNA5.
OS HOMO SAPIENS (HUMAN).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PRIMATES.
RN [1]
RP SEQUENCE FROM N.A.
RM 86037205
RA HENCO K., BROSIUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R.,
RA HOCHSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J.,
RA TODOKORO K., WAELECHLI M., NAGATA S., WEISSMANN C.;
RL J. MOL. BIOL. 185:227-260(1985).
RN [2]
RP SEQUENCE OF 57-189 FROM N.A.
RM 81148795
RA GOEDDEL D.V., LEUNG D.W., DULL T.J., GROSS M., LAMN R.M.,
RA MCCANDLISS R., SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.W.;
RL NATURE 290:20-26(1981).
CC -/- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.
CC -/- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; X02956; HSIFNA5.
DR EMBL; V00541; HSIFR13.
DR PIR; A01833; IVHUA7.
DR HSSP; P01563; 2HIE.
DR MIM; 147565; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON_ALPHA_BETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 189 INTERFERON ALPHA-5.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
SQ SEQUENCE 189 AA; 21942 MW; 184346 CN;

DB 4; Score 1074; Match 84.9%; QryMatch 87.9%; Pred. No. 1.12e-199;
Matches 141; Conservative 15; Mismatches 9; Indels 1; Gaps 1;

Db 24 cdlpqthslgsrrtlllmaqmckialfscldkrdhdfgfpqeeefgnqfkaetipvlhemi 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRISLFSCLKORRDFGFPQEEFGNQFKAETIPVLHEMI 59
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

Db 84 iqqifnlfstkdssawdetllldkfyetelyqqindleacmvgvgtetpmlnvdsiltv 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 60 IQQIFNLFSTKSSAAWDETLLDKFYETELYQQINDLEACVIGVGTETPLMKEDSILAV 119
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

Db 144 rkyfqrityllylekkyspcawevvraeimsrfsfstnlqeslsrke 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 120 RKYFQRITYLYLEKKYSPCAWEVVRRAEIMRSFSLSTNLQESLSRKE 165
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:

RESULT 3
ID INAD_HUMAN STANDARD; PRT; 189 AA.
AC P01570;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 21-JUL-1986 (REL. 01, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-14 PRECURSOR (INTERFERON ALPHA-H) (LEIF H)
DE (INTERFERON LAMBDA-2-H).

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GN      IFNA14.
OS      HOMO SAPIENS (HUMAN).
OC      EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC      EUTHERIA; PRIMATES.
[1]
RN      SEQUENCE FROM N.A.
RM      86037205
RR      HENCO K., BROSTUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R.,
RA      HOCHSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J.,
RA      TADOKORO K., WAELECHLI M., NAGATA S., WEISSMANN C.;
RL      J. MOL. BIOL. 185:227-260 (1985).
[2]
RN      SEQUENCE FROM N.A.
RM      81201124
RR      LAWN R.M., ADELMAN J., DULL T.J., GROSS M., GOEDDEL D.V., ULLRICH A.;
RL      SCIENCE 212:1159-1162 (1981).
[3]
RN      SEQUENCE FROM N.A.
RM      81148795
RR      GOEDDEL D.V., LEUNG D.W., DULL T.J., GROSS M., LAWN R.M.,
RA      MCCANDLISS R., SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.W.;
RL      NATURE 290:20-26 (1981).
-1- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC      ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC      A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.
CC      -1- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
CC      -1- A VARIANT SEQUENCE DIFFERS IN 3 POSITIONS. THE LAST 2 BEING THE
CC      RESULT OF A DELETION FOLLOWED BY AN INSERTION.
CC      EMBL: V00533; HSIFD3.
DR      EMBL: X02959; HSIFNA14.
DR      EMBL: J00542; HSIFR14.
DR      EMBL: J00214; HSIFNAH.
DR      PIR: C23753; IVH014.
DR      HSSP: P01563; ZHIE.
DR      MIM: 147579; 11TH EDITION.
DR      PROSITE: PS00252; INTERFERON ALPHABETA.
DR      CYTOKINE; ANTIVIRAL; MOLTIGENE FAMILY; GLYCOPROTEIN; SIGNAL.
RN      SIGNAL
RM      1 23
RR      CHAIN 24 189 INTERFERON ALPHA-14.
FT      DISULFD 24 122 BY SIMILARITY.
FT      DISULFD 52 162 BY SIMILARITY.
FT      CARBOHYD 25 25 POTENTIAL.
FT      VARIANT 175 175 L -> F.
FT      VARIANT 182 182 Q -> K.
FT      VARIANT 184 184 R -> G.
SQ      SEQUENCE 189 AA; 22062 MW; 182495 CN;
DB 4; Score 1050; Match 81.9%; QryMatch 85.9%; Pred. No. 1.88e-194;
Matches 136; Conservative 19; Mismatches 10; Indels 1; Gaps 1;
Ddb 24 cmlsgtlnrrtllmagmrtrispfcdkdrhdfpqeefdgngfkagaisvlhem 83
Qy 1 cdlp0tshlgsrtrllmlaomrrisilfscikdrndrfgfpqeeef-gnqfkaetivplhem 59
Ddb 84 maqtfnlfstkssawdetlllekfyielfqmndleacvqveetplmmedsilav 143
Qy 60 loqifnflstksaawdetllldkfytellyoqindleacvqvgvttetplmmedsilav 119
Ddb 144 klyfqriltlymekyspcawevvraeimsrlsfstnlqtrlrkd 189
Qy 120 rkyfqriltlymekyspcawevvraetmrslsfstnlqeslrsk 165
RESULT 4

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ID	INA6 HUMAN	STANDARD;	PRT;	189 AA.
AC	P05013;			
DT	13-AUG-1987	(REL. 05, CREATED)		
DT	13-AUG-1987	(REL. 05, LAST SEQUENCE UPDATE)		
DT	01-FEB-1995	(REL. 31, LAST ANNOTATION UPDATE)		
DE	INTERFERON ALPHA-6 PRECURSOR	(INTERFERON ALPHA-K)	(LEIF K)	(INTERFERON
DE	ALPHA-54).			
GN	IFNA6.			
OS	HOMO SAPIENS (HUMAN).			
OC	EUKARYOTA; METAZOA;	CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;		
OC	EUTHERIA; PRIMATES.			
CC	(1)			
RP	SEQUENCE FROM N.A.			
RM	86037205			
RA	HENCO K., BROSIUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R.,			
RA	HOGSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J.,			
RA	TODOKORO K., WELCHLI M., NAGATA S., WEISSMANN C.;			
RL	J. MOL. BIOL. 185:227-260(1985).			
CC	-1- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL			
CC	ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:			
CC	-1- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.			
CC	A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.			
CC	-1- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.			
DR	EMBL; X02958; HSIENAG6.			
DR	PIR; A23753; IVH016.			
DR	HSP; P01563; ZHI1.			
DR	MIM; 147566; 11TH EDITION.			
DR	PROSITE; PS00252; INTERFERON ALPHABETA.			
KW	CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.			
FT	SIGNAL 1 23			
FT	CHAIN 24 189 INTERFERON ALPHA-6.			
FT	DISULFID 24 122 BY SIMILARITY.			
FT	DISULFID 52 162 BY SIMILARITY.			
SQ	SEQUENCE 189 AA; 22140 MW; 182468 CN;			
DB	4; Score 1049; Match 86.1%; QryMatch 85.8%; Pred. No. 3,09e-194;			
	Matches 143; Conservative 8; Mismatches 14; Indels 1; Gaps 1;			
Db	24 cdldqthelghrrtmllagmririsfscldkdrhfrpgeefqdnqfkaeaisvlhev 83			
Qy	1 CDLPQTHSLGSRFTMLAQMRIRISLFSCLDKDRDFGPFQEEF-GNQFQKAEITPVLHEM 59			
Db	84 iqgtfnlfskdsavawderldklytelvgqlndleacvmqevwvggtplmmedsilav 143			
Qy	60 IQQIFNLFSTKDSAAWDETLDKFTLYELVQQLNDLEACVIGQGVGTPLMKEDSILAV 119			
Db	144 rkyfqrillytekkyspcawevvraeaimrfsfssnloqrllrke 189			
Qy	120 RKYFORITLYIKKYSPCAWEVVRAEIMRFSLSLNIQESLRKS 165			
RESULT	5			
ID	INA4 HUMAN	STANDARD;	PRT;	189 AA.
AC	P05014; P13358;			
DT	13-AUG-1987	(REL. 05, CREATED)		
DT	13-AUG-1987	(REL. 05, LAST SEQUENCE UPDATE)		
DT	01-FEB-1995	(REL. 31, LAST ANNOTATION UPDATE)		
DE	INTERFERON ALPHA-4 PRECURSOR	(INTERFERON ALPHA-4B)	(INTERFERON	
DE	ALPHA-M1)	(INTERFERON ALPHA-76).		
GN	IFNA4.			
OS	HOMO SAPIENS (HUMAN).			
OC	EUKARYOTA; METAZOA;	CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;		
OC	EUTHERIA; PRIMATES.			
CC	(1)			
RP	SEQUENCE FROM N.A.			

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RM 86037205
RA HENCO K., BROSIUS J., FUJISAMA A., FUJISAMA J.-I., HAYNES J.R.,
RA HOCHSTADT J., KOVACIC T., PASEK M., SCHAMBOECK A., SCHMID J.,
RA TODOKORO K., WAELECHI M., NAGATA S., WEISSMANN C.;
RL J. MOL. BIOL. 185:227-260(1985).
RN [2]
RP SEQUENCE FROM N.A.
RM 84307815
RA LINNANE A.W., BELTHARZ M.W., MCMULLEN G.L., MACREADIE I.G.,
RA MURPHY M., NISBET I.T., NOVITSKI C.E., WOODROW G.C.;
RL BIOCHEM. INT. 8:725-732(1984).
CC -I- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.
CC -I- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; X02955; HSIFNA4B.
DR EMBL; M27318; HSIFNAMI.
DR PIR; E23753; IVHU4B.
DR HSP; P01563; 2HIE.
DR MIM; 147564; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON ALPHABETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 189 INTERFERON ALPHA-4.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
FT CONFLICT 74 74 T -> A (IN REF. 2).
FT CONFLICT 137 137 V -> E (IN REF. 2).
SQ SEQUENCE 189 AA; 21808 MW; 184951 CN;

DB 4; Score 1030; Match 81.3%; QryMatch 84.3%; Pred. No. 4.18e-190;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;

Db 24 cdipqthslgnrrallilacmgriahsfclskdrhdfgpeefdgqktaqvslhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 1 CDLPQTHSLGSRRTLLMLAQMRRISLSCLKORRDFGPQEEF-GNQFQKAEIPVLHEM 59

Db 84 iqqtfnlfstdesaaweqsllekfstelngqldleaavigvgeetplmndsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 60 IQQIFNLFSTKDSAAWDETLLDKFYTELQYQINDLEACVIGGVGTETPLMKEDSILAV 119

Db 144 kfygritlyltekkyepcawevvraeimsrfsfsltnlqkrlrrkd 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 120 RKYFORITLYIKKKYSPCAWEVWRAEIMRSFSLTNLQESLSRKE 165

RESULT 6
ID INAK HUMAN STANDARD; PRT; 189 AA.
AC P01568;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 21-JUL-1986 (REL. 01, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-21 PRECURSOR (INTERFERON ALPHA-F) (LEIF F).
GN IFNA21.
OS HOMO SAPIENS (HUMAN).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PRIMATES.
RN [1]
RP SEQUENCE FROM N.A.
RM 81148795
RA GOEDEL D.V., LEUNG D.W., DULL T.J., GROSS M., LAWN R.M.,
RA MCCANDLISS R., SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.W.;
RL NATURE 290:20-26(1981).
RN [2]

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RP SEQUENCE FROM N.A.
RA GREN E.Y., BERZIN V.M., TSIMANIS A.Y., APSALON U.R., VISHNEVSKII Y.I.,
RA YANSONE I.V., DISHLER A.V., PUDOVA N.V., SMORODINTSEV A.A.,
RA IOLEV V.I., STEPANOV A.N., FELDMANE G.Y., MELDRATS Y.A., LOZHA V.P.,
RA KAVSAN V.M., EFIMOV V.A., SVERDLOV E.D.;
RL DOKL. BIOCHEM. 269:91-95(1983).
CC -I- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.
CC -I- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; V00540; HSIFR12.
DR EMBL; X00145; HSIFR16.
DR EMBL; J00212; HSIFNAF.
DR PIR; A01832; IVHUF.
DR HSP; P01563; 2HIE.
DR MIM; 147584; 11TH EDITION.
DR PROSITE; PS00252; INTERFERON ALPHABETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 189 INTERFERON ALPHA-21.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
FT CONFLICT 119 119 M -> L (IN REF. 2).
SQ SEQUENCE 189 AA; 21759 MW; 186062 CN;

DB 4; Score 1027; Match 81.9%; QryMatch 84.0%; Pred. No. 1.88e-189;
Matches 136; Conservative 16; Mismatches 13; Indels 1; Gaps 1;

Db 24 cdipqthslgnrrallilacmgriahsfclskdrhdfgpeefdgqktaqvslhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 1 CDLPQTHSLGSRRTLLMLAQMRRISLSCLKORRDFGPQEEF-GNQFQKAEIPVLHEM 59

Db 84 iqqtfnlfstdesaaweqsllekfstelngqldleaavigvgeetplmndsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 60 IQQIFNLFSTKDSAAWDETLLDKFYTELQYQINDLEACVIGGVGTETPLMKEDSILAV 119

Db 144 kfygritlyltekkyepcawevvraeimsrfsfsltnlqkrlrrke 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 120 RKYFORITLYIKKKYSPCAWEVWRAEIMRSFSLTNLQESLSRKE 165

RESULT 7
ID INAK HUMAN STANDARD; PRT; 189 AA.
AC P01571;
DT 21-JUL-1986 (REL. 01, CREATED)
DT 01-OCT-1994 (REL. 30, LAST SEQUENCE UPDATE)
DT 01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-17 PRECURSOR (INTERFERON ALPHA-I') (INTERFERON
DE ALPHA-F) (INTERFERON ALPHA-88).
GN IFNA17.
OS HOMO SAPIENS (HUMAN).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PRIMATES.
RN [1]
RP SEQUENCE FROM N.A.
RM 81201124
RA LAWN R.M., ADELMAN J., DULL T.J., GROSS M., GOEDEL D.V., ULLRICH A.;
RL SCIENCE 212:1159-1162(1981).
RN [2]
RP SEQUENCE FROM N.A.
RM 85229953
RA MIKOGUCHI J., PITHA P.M., RAJ N.B.K.;
RL DNA 4:221-232(1985).
RN [3]

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FT	DISULFID	24	122	BY SIMILARITY.
FT	DISULFID	52	162	BY SIMILARITY.
SQ	SEQUENCE	189 AA;	21835 MW;	178838 CN;
DB	4; Score	1017;	Match 81.3%;	QryMatch 83.2%;
	Matches	135;	Conservative	18; Mismatches
				12; Indels
				1; Gaps
Db	24	cdlpgthelgnrralillqgmgrispsfclckdrhdfripqesfdngfqkaqiaavlhlem 83		
Qy	1	CDLPQTHSGSRRTIMLLAQNRISLFSCKDRDGFQEEF-GNQFQKAETIPVLHEM 59		
Db	84	iqgtfnlftstedssaawegsllekfstelyqclndleacvigevqveetplmnedsiilav 143		
Qy	60	IQQINFLFSTRDSSAWEETLLDKFYELYQQQLNDLEACVIGGVGTETPLAKEDSIILAV 119		
Db	144	kryqritlylierkyspcawevraeimsrlsfstnlqtkrrkd 189		
Qy	120	KRYFORITLYLKEKQYSPCAWVVRAEIMRFSFSLTNLAQESLRKE 165		

RESULT	10
ID	INAB HUMAN STANDARD; PRT; 189 AA.
AC	P32681; P09236; P01565;
DT	21-JUL-1986 (REL. 01, CREATED)
DC	13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)
DD	01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)
DE	INTERFERON ALPHA-8 PRECURSOR (INTERFERON ALPHA-B2) (INTERFERON DE ALPHA-B) (LEIF B).
DG	FNAB.
DN	G
OS	HOMO SAPIENS (HUMAN).
OC	EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
CC	EUTHERIA; PRIMATES.
[1]	
RN	SEQUENCE FROM N.A.
RM	86037205
RA	HENCO K., BROSIUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R., ROCHSTADT J., KOVACIC T., PASEK M., SCHRAMBOECK A., SCHMID J., RATODOKORO K., WAEILCHI M., NAGATA S., WEISSMANN C.; J. MOL. BIOL. 185:227-260(1985).
RL	[2]
RN	SEQUENCE FROM N.A.
RP	
RM	81174733
RA	YELVERTON E., LEUNG D., WECK P., GRAY P.W., GOEDDEL D.V.;
RL	NUCLEIC ACIDS RES. 9:731-741(1981).

3]	SEQUENCE FROM N.A.
RP	81148795
RM	GOEDEL D.V., LEDUNG D.W., DULL T.J., GROSS M., LAWN R.M.,
RA	McCANDLISS R., SEEBURG P.H., ULLRICH A., YELVERTON E., GRAY P.W.;
RA	NATURE 290:20-26(1981).
RL	-I- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC	ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES.
CC	A PROTEIN KINASE AND AN OLIGONUCLEOTIDE SYNTHETASE.
CC	-I- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
CC	EMBL; X03125; HSIFNA8.
DR	EMBL; V00550; HSIFR8.
DR	PIR; D23753; IVHU18.
DR	PIR; A01829; IVHU04.
DR	HSSP; P01563; 2HIE.
DR	MIM; 147568; 11TH EDITION.
DR	PROSITE; PS00252; INTERFERON ALPHABETA.
KW	CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT	SIGNAL 1 23
FT	CHAIN 24 189
FT	INTERFERON ALPHA-8.

FT	DISULFID	24	122	BY SIMILARITY.
FT	DISULFID	52	162	BY SIMILARITY.
FT	CONFLICT	8	8	L -> M (IN REF. 2 AND 3).
FT	CONFLICT	121	124	SCVM -> VLCD (IN REF. 2 AND 3).
SQ	SEQUENCE	189 AA; 21989 MW;		187461 CN;
DB	4; Score	1012; Match 82.5%;	QryMatch 82.8%;	Pred. No. 3.40e-186;
Matches	137; Conservative	13; Mismatches 15;	Indels 1;	Gaps 1;
Db	24	cdlpqthslgnrralllaqmrriisfcikrhdfpqeeffddkfqqakaaisvhlhem	83	
Qy	1	CDLPQTHSLGSRRTTLLAQMRRISIFSCIKORADFQFQEEFGN-QFQAAETPVLHEM	59	
Db	84	iqqtfnlftkdsaaldetlldefyielddqnlndescvmeqevgiesplmyedsilav	143	
Qy	60	IQQIFNLFTKDSAAADETLDDKFYTELYQQQLNDLEACVIQGVGVETPIMKEDSILAV	119	
Db	144	kyfqritlyltekkyscawevraeimsrfsislnqltrikske	189	
Qy	120	KRYFORITLYLKEKQYSPCAWEVRAEIMRSFSLSTNWQESLRSE	165	

RESULT	11	
ID	INA7 HUMAN	STANDARD; PRT; 189 AA.
AC	P01567;	
DT	21-JUL-1986 (REL. 01, CREATED)	
DT	21-JUL-1986 (REL. 01, LAST SEQUENCE UPDATE)	
DT	01-FEB-1995 (REL. 31, LAST ANNOTATION UPDATE)	
DE	INTERFERON ALPHA-7 PRECURSOR (INTERFERON ALPHA-J1) (INTERFERON	
DE	ALPHA-J) (LEIF J).	
GN	INA7.	
OS	HOMO SAPIENS (HUMAN).	
OC	EUKARYOTA; METAZOA;	
OC	EUTHERIA; PRIMATES.	
RN	[1]	
RP	SEQUENCE FROM N.A.	
RM	86037205	
RA	HENCO K., BROSIUS J., FUJISAWA A., FUJISAWA J.-I., HAYNES J.R.,	
RA	HOGSTADT J., KOVACIK T., PASEK M., SCHAMOECK A., SCHMID J.,	
RA	TODOKORO K., WAEGLICHI M., NAGATA S., WEISSMANN C.;	
RL	J. MOL. BIOL. 185:227-260 (1985).	
[2]		
RN	SEQUENCE FROM N.A.	
RM	83010248	
RA	ULLRICH A., GRAY A., GOEDDEL D.V., DULL T.J.;	
RL	J. MOL. BIOL. 156:467-486 (1982).	
CC	-!- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL	
CC	ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:	
CC	A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.	
CC	-!- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.	
DR	EMBL; X02960; HSIFN.7.	
DR	PIR; A01831; IVHU80.	
DR	RSSP; P01563; 2HIE.	
DR	MIM; 147567; 11TH EDITION.	
DR	PROSITE; PS00252; INTERFERON ALPHABETA.	
KW	CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.	
FT	SIGNAL 1 23	
FT	CHAIN 24 189	INTERFERON ALPHA-7.
FT	DISULFID 24 122	BY SIMILARITY.
FT	DISULFID 52 162	BY SIMILARITY.
SQ	SEQUENCE 189 AA; 22106 MW; 185066 CN;	
DB	4; Score 1012; Match 79.5%;	OryMatch 82.8%; Pred. No. 3.40e-186;
Matches	132; Conservative 20; Mismatches 13; Indels 1; Gaps 1;	


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* QY 120 RRYFORITLYKEKYSPCAMEVRAEIMRSFSLSTNLQES 160
      1:|||||  |||||||  |||||||  |||||||  |||||||  |||  :|
RESULT 14
ID INA2 HORSE STANDARD; PRT; 184 AA.
AC P05004;
DT 13-AUG-1987 (REL. 05, CREATED)
DT 13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)
DT 01-MAR-1989 (REL. 10, LAST ANNOTATION UPDATE)
DE INTERFERON ALPHA-2 PRECURSOR.
OS EQUUS CABALLUS (HORSE).
OC EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
OC EUTHERIA; PERISSODACTYLA.
RN [1]
RP SEQUENCE FROM N.A.
RM 87053170
RA HIMMLER A., HAUPTMANN R., ADOLF G.R., SWETLY P.;
RL DNA 5:345-356(1986).
CC -!- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.
CC -!- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; M14541; ECIFN2.
DR PIR; B24912; IVHOA2.
DR HSP; P01563; ZHIE.
DR PROSITE; PS00252; INTERFERON ALPHABETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 184 INTERFERON ALPHA-2.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
SQ SEQUENCE 184 AA; 20877 MW; 172708 CN;

DB 4; Score 952; Match 76.4%; QryMatch 77.9%; Pred. No. 3.50e-173;
Matches 123; Conservative 20; Mismatches 17; Indels 1; Gaps 1;

Db 24 cdphthelgntrvmlmgmrriispsfclkdndfgpgevfqdnqfrkpkqaisavhet 83
      |||:||||: | |||:||||| ||||| ||||| ||||| |||||: ||
QY 1 CDLPQTHSLGSRRTMLLAQMRRISLFSCLKDRDRDFGFPQEEF-GNQFOKAETIPVLHEM 59

Db 84 iqqihflfstdgsaawdeslkdlytglyqqlteacisqevgveetplmmedsllav 143
      ||||:|||| |||||:||||:| ||||:||||: ||||: ||||: ||||: ||||: ||
QY 60 IQQIFNLFSKDSAAWDETLLDKFYELYQQLNDLEACVIQGVGTETPLMKEDSILAV 119

Db 144 rryfgrllylqekyspcawelvracimrcfsstnlqqs 184
      |:||||:|||| |||||:||||:| |||||:||||: ||||: ||||: ||||: ||||: ||
QY 120 RRYFORITLYKEKYSPCAMEVRAEIMRSFSLSTNLQES 160

Search completed: Tue Aug 29 17:06:16 1995
Job time : 12 secs.

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RL DNA 5:345-356(1986).
CC -!- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGODENYLATE SYNTHETASE.
CC -!- SIMILARITY: TO ALPHA-II AND BETA-INTERFERONS.
DR EMBL; M14540; ECIFN1A.
DR PIR; A24912; IVHOA1.
DR HSP; P01563; ZHIE.
DR PROSITE; PS00252; INTERFERON ALPHABETA.
KW CYTOKINE; ANTIVIRAL; MULTIGENE FAMILY; SIGNAL.
FT SIGNAL 1 23
FT CHAIN 24 184 INTERFERON ALPHA-1.
FT DISULFID 24 122 BY SIMILARITY.
FT DISULFID 52 162 BY SIMILARITY.
SQ SEQUENCE 184 AA; 20808 MW; 176176 CN;

DB 4; Score 950; Match 76.4%; QryMatch 77.7%; Pred. No. 9.49e-173;
Matches 123; Conservative 20; Mismatches 17; Indels 1; Gaps 1;

Db 24 cdphthelgntrvmlmgmrriispsfclkdndfgpgevfqdnqfrkpkqaisavhet 83
      |||:||||: | |||:||||| ||||| ||||| ||||| |||||: ||
QY 1 CDLPQTHSLGSRRTMLLAQMRRISLFSCLKDRDRDFGFPQEEF-GNQFOKAETIPVLHEM 59

Db 84 iqqihflfstdgsaawdeslkdlytglyqqlteacisqevgveetplmmedsllav 143
      ||||:|||| |||||:||||:| ||||:||||: ||||: ||||: ||||: ||||: ||
QY 60 IQQIFNLFSKDSAAWDETLLDKFYELYQQLNDLEACVIQGVGTETPLMKEDSILAV 119

Db 144 rryfgrllylqekyspcawelvracimrcfsstnlqqs 184
      |:||||:|||| |||||:||||:| |||||:||||: ||||: ||||: ||||: ||||: ||
QY 120 RRYFORITLYKEKYSPCAMEVRAEIMRSFSLSTNLQES 160

Search completed: Tue Aug 29 17:06:16 1995
Job time : 12 secs.

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(ML)

工 口 目 田 回 王

Release 2.1D John F. Collins, Biocomputing Research Unit.
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MPsrch nn n.a. - n.a. database search, using Smith-Waterman algorithm

Run on: Tue Aug 29 19:01:10 1995; MasPar time 54.70 Seconds
810.721 Million cell updates

Tabular output not generated.

Title: >US-08-249-671-8

Description: (1:869) from US08249671.seq

Perfect Score: 869
N.A. Sequence: 1 GAATTCGAGATTATCGTCAC.....TGATAACGATCGTAACTGCA 869
Comp: CTTAAGCTCTAATAGCAGTG.....ACTATTGCTAGCATTGACGT

Scoring table: TABLE default
Gap 6

Nmatch STD : Dbase 0: Query 0

Searched: 61539 seqs. 25515148 bases x 2

Database: n-genes

1	n-gen1
2	n-gen2
3	n-gen3
4	n-gen4
5	n-gen5
6	n-gen6
7	n-gen7
8	n-gen8
9	n-gen9
10	n-gen10
11	n-gen11

Statistics: Mean 9.222; Variance 5.827; scale 1.582

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query			ID	Description	Pred. No.
		Match	Length	DB			
1	500	57.5	639	3	Q20764	Human IFNalpha 2C gen	2.46e-310
2	500	57.5	639	3	Q20731	pAD19b-IFN HindIII/Xb	2.46e-310
3	498	57.3	589	3	N50272	DNA encoding interfer	5.53e-309
4	498	57.3	501	2	N07528	Sequence encoding IFN	5.53e-309

RESULT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	
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PA	(BOEH) BOEHRINGER INGELHEI.	FT	/label= IFN-alpha2c
PI	Himmler A, Adolf G;	PN	W09201055-A.
DR	WPI; 92-025485/04.	PD	23-JAN-1992.
DR	P-PSDB; R20549.	PF	06-JUL-1991; E01266.
DR	O-glycosylated alpha-interferon, used as medicament - isolated	PR	10-JUL-1990; DE-021917.
PT	following secretion into conditioned medium of mammalian cells	PR	12-NOV-1990; DE-035877.
PT	contg. a suitable expression plasmid	PA	(BOEH) BOEHRINGER INGELHEIM.
PS	Disclosure; Fig 6; 24pp; German.	PI	Adolf G, Himmler A, Ahorn HJ, Kalsner I, Maurer-Fogy I;
CC	Human embryonic kidney cells transformed with the human IFNalpha	DR	WPI; 92-056870/07.
CC	2C gene, contd. in pAD19B-IFN, are grown under suitable conditions.	DR	p-PSDB; R20564.
CC	O-glycosylated IFNalpha can then be isolated and purified from the	PT	O-glycosylated alpha-interferon - used for treatment of
CC	tissue culture supernatant.	PT	viral of tumour diseases
CC	See also Q20764-66 and Q22517-29.	PS	Disclosure; Fig 6(A+B); 104pp; English.
SQ	Sequence 639 BP; 171 A; 155 C; 152 G; 161 T;	CC	Plasmid pAD-CMV19 (6.1 kb) is incubated with HindIII and XbaI, then
		CC	ligated with a modified cDNA fragment for human IFN-alpha2c. This
		CC	fragment is obt'd. from the known clone IF7 by PCR-modification of
		CC	the 5'-noncoding region to replace it with the corresp. region from
		CC	human beta-globulin mRNA. This modification significantly improves
		CC	expression by increasing the efficiency of initiation of translation.
		CC	The recombinant prod. is designated pAD19B-IFN.
		CC	See also Q20731-43 and Q20522-26.
		SQ	Sequence 639 BP; 171 A; 155 C; 152 G; 161 T;
		DB 3;	Score 500; Match 99.8%; QryMatch 57.5%; Pred. No. 2.46e-310;
		Matches	501; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
Db	126 tgtgatctgctcaaacccacagcctgggtagcagagagacttgatctctggccacag 185		
Qy	355 TGTGATCTGCTCAAAACCCACAGCCTGGGTAGCAGAGGACCTTGAATCTTCCCGAC 414		
Db	186 atgaggagaatctctcttctcctgcttgaggacagcagctgattggattccacag 245		
Qy	415 ATGAGGAGAATCTCTCTTCTCTCTGCTTGAAGGACAGAGCTGACTTTGGATTTCGCCAG 474		
Db	246 gaggagtttggcaaccagttccaaaaggctgaacacatccctgtcctcatgatgatc 305		
Qy	475 GAGGAGTTTGGCACACAGTTCGAAAGGCTGAAACCATCCCTCTCCATGAGATGATC 534		
Db	306 cagcagatcttcaatctcttcacgacaaaggactcatctgcttggatgagaccctc 365		
Qy	535 CAGCAGATCTTCAATCTCTTTCAGACAAAAGGACTCATCTGCTTGGGATGAGACCCCTC 594		
Db	366 ctagacaaattctacactgaactctaccagagctgaatgaactggaagcctgtgata 425		
Qy	595 CTAGACAAATTTACACTGAACTCTACCAGCAGCTGAATGACCTGGAGAGCTGTGATA 654		
Db	426 caaggggtgggggtgacagagactccctgatgaagaggactccattctgctgtgagg 485		
Qy	655 CAGGGGTGGGGGTGACAGAGACTCCCTCATGAGGAGGACTCCATCTGGCTGTGAGG 714		
Db	486 aaactctccaaagaatcaatctctatctgaaagagaagaatacacagccttgtgctgg 545		
Qy	715 AAATACTCCAAAGAAATCACTCTATCTGMAAGAGAGAAATACAGCCCTTGTGCTGG 774		
Db	546 gaggttgtcagacagaaatcatgatcttttctttgtcaacaacttgcagaagagt 605		
Qy	775 GAGGTGTGACAGAGAGAAATCATGAGATCTTTTCTTTGTCAACAACACTTGCAGAAAGT 834		
Db	606 ttaagaagtaaggaatgaaac 627		
Qy	835 TTAAGAAGTAAGGAATGATAAC 856		
RESULT	2		
ID	Q20731 standard; DNA; 639 BP.		
AC	Q20731;		
DT	19-MAY-1992 (first entry)		
DE	pAD19B-IFN HindIII/XbaI insert.		
KW	Interferon; IF7; beta-globulin; ss.		
EH	Key		
FT	Location/Qualifiers		
CD	9..623		
FT	/*tag= a		
RESULT	3		

CC interferons are useful as antiviral and antitumour agents. Both IFN-
 CC alpha-2(Arg) and omega-1-interferon has a 191-196 BglII restriction
 CC site (see N70528 and N70529). In addition, IFN-alpha-2(Arg) has a
 CC 451-456 BglIII site.
 SQ Sequence 501 BP; 141 A; 116 C; 123 G; 121 T;

DB 2; Score 498; Match 100.0%; QryMatch 57.3%; Pred. No. 5.53e-309;
 Matches 498; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 4 tttgatctgctcaaacaccagctgggtagcaggagacattgatctctggcacag 63
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 355 TGTGATCTGCTCAAAACCCAGACGCTGGGTAGCAGGAGACCTTGATGCTCGGCACAG 414

Db 64 atgaggagaatctcttcttctctgcttgaggacagacgtgacttggattcccccag 123
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 415 ATGAGGAGAAATCTCTCTTTCTCTCTTGAAGGACAGACGCTGACTTTGGATTTCCCCAG 474

Db 124 gaggagtttggaacccaggttccaaaaggctgaaccatccctgtctcccatgagatgac 183
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 475 GAGGAGTTTGGCAACACGTTCCAAAGGCTGAAACCATCCCTGTCTCCATGAGATGATC 534

Db 184 cagcagatctcaatctctcagcaaaaggactcatctgctgtgggatgagaccctc 243
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 535 CAGCAGATCTTCAATCTCTTCAGCAAAAGGACTCATCTGCTTGGGATGAGACCCCTC 594

Db 244 ctagacaaattctacatgaactctaccagcagctgaatgaactggaagcctgtgtgata 303
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 595 CTAGCAAAATCTACACTGAACCTTACCAGCAGCTCAATGACCTGGAAGCCTGTGTGATA 654

Db 304 caggggtgggggtgacagagactccctgatgaaggaggactccattctggctgtgag 363
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 655 CAGGGGTGGGGGTGACAGACATCCCTGATGAAGGAGGACTCCATCTCTGGCTGTGAGG 714

Db 364 aaatactccaagaatcaactctctatctgaaagagaagaatacacgacctgtgctgg 423
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 715 AAATACTTCCAAAGAAATCACTCTATCTGAAAGAGAAATAACAGCCCTTGTGCTGG 774

Db 424 gaggtgtcagagcaaaatcatgagatcttttcttgttcaacaacttgcagaagat 483
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 775 GAGGTGTGACAGCAAAATCATGATCTTTTCTTTGTCACAAACTTCCAGAAAGT 834

Db 484 ttaagaagtaaggaatga 501
 ||||||||||||||||||||
 QY 835 TTAAGAGTAAGGAATGA 852

RESULT 5
 ID N60399 standard; DNA; 1863 BP.
 AC N60399;
 DT 25-JUN-1991 (first entry)
 DE Sequence of the promoter region 22 of the alca gene, the synthetic
 DE signal peptide coding region 68 and the coding region 60 coding for
 DE human interferon alpha-2 in pALCA1SIFN.
 KW Filamentous fungi promoter; ds.

FH Key Location/Qualifiers
 FT misc feature 29
 FT /*tag= a
 FT /note= * = base 1200*
 FT sig_peptide 878..922
 FT /*tag= b
 FT CDS 923..975
 FT /*tag= c
 FT mat_peptide 976..1474
 FT /*tag= d

PN W08606097-A.
 PD 23-OCT-1986.
 PF 14-APR-1986; G00209.
 PR 15-APR-1985; CA-479135.
 PR 20-DEC-1985; US-811404.
 PA (ALIE-) ALLELIX INC.
 PI Gwynne DI, Buxton F, Pickett M, Davies R, Scazzocchio C;
 DR WPI; 86-291664/44.
 PT DNA construct for use in filamentous fungi - comprising promoter
 PT operative in filamentous fungi to promote transcription of coding
 PT region
 PS Disclosure; Fig 11; 75pp; English.

CC In the constructs of the invention, the promoter region naturally
 CC associated with the alcohol dehydrogenase I (alcaA) gene and the
 CC aldehyde dehydrogenase (aldA) gene of *A. nidulans* or naturally
 CC associated with the glucoamylase gene in *Aspergillus niger* may be
 CC used. The DNA construct may contain a promoter region in operative
 CC association with a signal peptide coding region. The promoter/signal
 CC construct is suitably provided with a flanking restriction site to
 CC allow precise coupling of the protein coding region to the signal
 CC peptide coding region.

SQ Sequence 1863 BP; 516 A; 425 C; 422 G; 500 T;
 DB 2; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 5.53e-309;
 Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Db 977 tttgatctgctcaaacaccagctgggtagcaggagacattgatctctggcacag 1036
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 355 TGTGATCTGCTCAAAACCCAGACGCTGGGTAGCAGGAGACCTTGATGCTCGGCACAG 414

Db 1037 atgaggagaatctcttcttctctgcttgaggacagacatgactttggattcccccag 1096
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 415 ATGAGGAGAAATCTCTCTTTCTCTCTTGAAGGACAGACGCTGACTTTGGATTTCCCCAG 474

Db 1097 gagagatttggcaaacaggttccaaaaggctgaaacccatccctgtctccatgagatgac 1156
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 475 GAGGAGTTTGGCAACACGTTCCAAAGGCTGAAACCATCTGCTTCCATGAGATGATC 534

Db 1157 cagcagatctcaatctctctcagcaaaaggactcatctgctgtgggatgagaccctc 1216
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 535 CAGCAGATCTTCAATCTCTTTCAGCAAAAGGACTCATCTGCTTGGGATGAGACCCCTC 594

Db 1217 ctagacaaattctacatgaactctaccagcagctgaatgacctggaagcctgtgtgata 1276
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 595 CTAGCAAAATCTTACACTGAACCTTACCAGCAGCTCAATGACCTGGAAGCCTGTGTGATA 654

Db 1277 caggggtgggggtgacagagactccctgatgaaggaggactccattctggctgtgag 1336
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 655 CAGGGGTGGGGGTGACAGAGACTCCCTGATGAGAGGAGACTCCATCTCTGGCTGTGAGG 714

Db 1337 aaatactccaagaatcaactctctatctgaaagagaagaatacacgacctgtgtgctgg 1396
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 715 AAATACTTCCAAAGAAATCACTCTATCTGAAAGAGAGAAATAACAGCCCTTGTGCTGG 774

Db 1397 gaggtgtcagagcagaatcatgagatcttttcttgtcaacaacttgcagaagaaat 1456
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 775 GAGGTGTGACAGCAAAATCATGATCTTTTCTTTGTCACAAACTTCCAGAAAGT 834

Db 1457 ttaagaagtaaggaatgaaac 1478
 ||||||||||||||||||||
 QY 835 TTAAGAGTAAGGAATGATAC 856

RESULT 6

ID NI0011 standard; DNA; 744 BP.
AC NI0011;
DT 13-AUG-1992 (first entry)
DE Sequence of the Hif-II-206 fragment of culture HcIF-G encoding
DE interferon (IFN) -alpha-2 and signal sequence.
KW Anti-viral agent; anti-cancer agent; therapy; tumour; ss.
OS Homo sapiens.
FH Key Location/Qualifiers
FT sig_peptide 2..52
FT /*tag= a
FT mat_peptide 53..550
FT /*tag= b
PN EP-32134-A.
PD 15-JUL-1981.
PF 07-JAN-1981; 300050.
PR 08-JAN-1980; EP-300079.
PR 03-APR-1980; EP-301100.
PR 02-OCT-1980; GB-031737.
PA (BIOJ) BIOGEN NV.
PI Weissmann G;
DR WPI; 81-53697D/30.
DR P-PSDB; P10018.
PT DNA sequences coding for interferon-like polypeptide(s) - useful
PT as antiviral or antitumour agents
PS Claim 6; Fig 12-16; 136pp; English.
CC The inventors claim DNA sequences coding for interferon-like
CC polypeptide(s). The DNA sequences pref. encode IFN-alpha type 1, 2,
CC 4a and 4b. Pref. DNA sequences which hybridise to the inserts of 2-
CC pBR322(pst)/HcIF-4c, 2-pBR322(pst)/HcIF-2h, 2-pBR322(pst)/HcIF-SN35,
CC 2-pBR322(pst)/HcIF-SN42 and 2-pBR322(pst)/HcIF-2h-AH6 comprise
CC 2-pBR322(pst)/HcIF-II-206, 2-pBR322(pst)/HcIF-SN35-AHL6, and
CC Hif-chrl, -3, -12, -13, -16-1, -26, -30, -35, -19 and -27. Pref.
CC recombinant DNA molecules are C8-IFN-alpha-1, C8-IFN-alpha-2,
CC LAC-AUG(alpha-2) and beta-lac-AUG(alpha-2). A comparison of the
CC nucleotide sequence of the coding region of HcIF-35HB-alpha and
CC that of Hif-2h (coding region) reveals that they are identical.
SQ Sequence 744 BP; 202 A; 171 C; 169 G; 202 T;

DB 4; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 5.53e-309;
Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Db 53 tgtgatctgctcaaacccacagcctgggttagcaggagacattgatctctcggcacag 112
|||||
Qy 355 TGTGATCTGCTCAAAACCCACAGCCCTGGGTAGCAGGAGACCTTGATGCTCTGGCAG 414
|||||
Db 113 atgaggagaatctctcttctctgctgctgaagacagacatgactttggattcccccag 172
|||||
Qy 415 ATGAGAGAAATCTCTCTTTCTCTGCTTGAAGACACAGCTGACTTTGGATTTCCCCAG 474
|||||
Db 173 gaggagtttgcaacacagtttccaaaggtgaaacatccctctcctcatgagatgatc 232
|||||
Qy 475 GAGGAGTTTGGCAACAGTCTCCAAAAGGCTCAAAACATCCCTGCTCCATGAGATGATC 534
|||||
Db 233 cagcagatctcaatctcttcacgacaaaggacatctctgctgtggatgagaccctc 292
|||||
Qy 535 CAGCAGATCTTCAATCTCTTTCAGCAAAAGCACTATCTGCTGCTTGGGATGAGACCTC 594
|||||
Db 293 ctagacaaattctcaactgaactctaccagagctgaatgacctggaagcctgtgtgata 352
|||||
Qy 595 CTAGACAAATTTCACTGAATCTTACACGACCTGATGACCTGGAGCCCTGTGTGATA 654
|||||
Db 353 cagggggtgggggtgacagagactccctgatgaaaggagactccattctgctgtgagg 412
|||||
Qy 655 CAGGGGGTGGGGGTGACAGAGACTCCCTGATGAAGGAGGACTCCATTTCTGGCTGTGAGG 714
|||||

Db 413 aaatacttccaagaatcactctctatctgtgaagaagaagaatacacagcccttgctcgtgg 472
|||||
Qy 715 AAATACTTCCAAAGAAATCACTCTCTATCTGAAGAGAGAAATACAGCCCTTGTGCTGG 774
|||||
Db 473 gaggtgtcagagacagaatcatgagatcttttcttcttcaacaaacttgcagaagat 532
|||||
Qy 775 GAGGTGTCTAGAGAGAAATCATGAGATCTTTTCTTGTTCACAACTTGCAGAAAGT 834
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Db 533 ttaagaagtaagaatgaaac 554
|||||
Qy 835 TTAAGAACTAAGGAATGATAAC 856
|||||

RESULT 7
ID N20090 standard; cDNA; 958 BP.
AC N20090;
DT 10-AUG-1992 (first entry)
DE Sequence of leukocyte interferon Leif A cDNA.
KW Viral infection; therapy; malignancy; ss.
OS Homo sapiens.
FH Key Location/Qualifiers
FT CDS 60..626
FT /*tag= a
PN GB2079291-A.
PD 20-JAN-1982.
PF 01-JUL-1981; 120279.
PR 01-JUL-1980; US-164986.
PR 08-SEP-1980; US-184909.
PR 10-NOV-1980; US-205578.
PR 21-APR-1981; US-256204.
PA (HOFF) HOFFMANN-LA ROCHE AG.
PA (GENE-) GENENTECH INC.
PI Goeddel DVN, Pestka S;
DR WPI; 82-04460E/03.
DR P-PSDB; P20103.
PT Mature human leukocyte interferon polypeptide(s) - prepd. from
PT microbes transformed with appropriate DNA sequences
PS Claim 34; Fig 3; 20pp; English.
CC The inventors claim a polypeptide comprising the AA sequence of a
CC mature human Leif and a DNA sequence encoding it. Leif A-D, F, H-J
CC and encoding DNA are specifically claimed. They are natural allelic
CC variations. Leif is isolated from the leukocytes of humans with
CC chronic myelogenous leukaemia, induced to produce interferon with
CC Sendai or Newcastle disease virus; esp. the cell line KG-1.
SQ Sequence 958 BP; 266 A; 211 C; 193 G; 288 T;

DB 4; Score 496; Match 99.4%; QryMatch 57.1%; Pred. No. 1.24e-307;
Matches 499; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Db 130 tgtgatctgctcaaacccacagcctgggttagcaggagacattgatctcctggcacag 189
|||||
Qy 355 TGTGATCTGCTCAAAACCCACAGCCCTGGGTAGCAGGAGACCTTGATGCTCTGGCAG 414
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Db 190 atgaggaataatctcttctctctctgctggaagacagacatgactttggattcccccag 249
|||||
Qy 415 ATGAGGAAATCTCTCTTTCTCTGCTTCAAGCAGACAGCTGACTTTGGATTTCCCCAG 474
|||||
Db 250 gaggagtttggcaaccaggttccaaaggtgaaacatccctgctcctcatgagatgatc 309
|||||
Qy 475 GAGGAGTTTGGCAACCACTTCCAAAGGCTGAAACCCTCCCTGCTCCATGAGATGATC 534
|||||
Db 310 cagcagatcttcaatctcttcacgacaaaggactcatctgctgcttgggagagaccctc 369
|||||

QY 535 CACGAGATCTTCAATCTCTTCAGCACAAAGGACTCATCTGCTGCTTGGGATGAGACCCCTC 594
 Db 370 ctagacaaattctacactgaactctaccagcagctgaatgactctgaaqcctgtgtgata 429
 QY 595 CTAGACAAATTCCTACACTGAACCTCTACACGACGCTGAATGACCTGGAGCCCTGTGTGATA 654
 Db 430 caggggggtgggggtgacagagactccctgatgaagagagactccattctggtgtgag 489
 QY 655 CAGGGGGTGGGGGTGACAGAGACTCCCTCATGATGAGGAGGACTCCATTCTGGCTGTGAGG 714
 Db 490 aaatactccaaagaatcaactctctatctgaagagagaagaatacagccctgtgctgg 549
 QY 715 AAATATCTCCAAAGAAATCACTCTCTATCTGAAAGAGAGAAATACAGGCCCTGTGCTGG 774
 Db 550 gaggtgtcagagcagaataatcatgatctctttttttgtcaacaactgtcaagaagt 609
 QY 775 GAGGTGTGAGAGCGAATCATGAGATCTTTTCTTTGTGTCMAAACTTCAGAAAGT 834
 Db 610 ttaagaagtaaggaatgaaac 631
 QY 835 TTAAGAGTAAGGAATGATAAC 856

RESULT 8

ID Q47153 standard; cDNA; 647 BP.
 AC Q47153;
 DT 21-JAN-1994 (first entry)
 DE Natural human interferon-alpha cDNA.
 KW IFN-alpha; hIFN-alpha; ss.
 OS Homo sapiens.
 FH Key Location/Qualifiers
 FT CDS 1..504
 FT /*tag= a
 PN EP-553494-A.
 PD 04-AUG-1993.
 PF 29-DEC-1992; 122084.
 PR 31-DEC-1991; KR-025878.
 PR 31-DEC-1991; KR-025879.
 PR 28-JAN-1992; KR-001155.
 PA (LUCK-) LUCKY LTD.
 PI Bae TO, Chang HJ, Cho JM, Park SJ, Park YM.
 DR WPI; 93-244548/31.
 DR P-PSDB; R38793.
 PT Recombinant human alpha interferon and corresp. gene - for
 PT efficient expression in yeast, and purificn. process
 PS Disclosure; Fig 1B; 30pp; English.
 CC The sequence is that of natural human interferon-alpha cDNA.
 SQ Sequence 647 BP; 174 A; 154 C; 151 G; 168 T;

DB 7; Score 496; Match 99.4%; QryMatch 57.1%; Pred. No. 1.24e-307;
 Matches 499; Conservative 0; Mismatches 3; Indels 0; Gaps 0;
 Db 76 tgtatctgctcaaccacagctgggtagcagagagacttgatgctctggcacag 135
 QY 355 TGTGATCTGCTCAAAACCGACAGCCCTGGGTAGCAGGAGGACCTTGATGCTCTGGCACAG 414
 Db 136 atgagaaaatctctctttctctgctgaagacagacatgctttgattccacag 195
 QY 415 ATGAGGAGAAATCTCTCTTTCTCTCTCTGAGGAGACGCTGACTTTGATTTCCCCAG 474
 Db 196 gaggagtgtggcaaccaggttccaaaggctgaaacatccctgtctccatgagatgac 255
 QY 475 GAGGAGTTTGGCAACCAAGCTTCCAAAGGCTGAAACCATCCCTGCTCTCCATGAGATGATC 534

Db 256 cagcagatcttcaatctctctcagcaaaaggactcaatctgctgttgggatgagaccctc 315
 QY 535 CACGAGATCTTCAATCTCTTCAGCACAAAGGACTCATCTGCTGCTTGGGATGAGACCCCTC 594
 Db 316 ctagacaaattctacactgaactctaccagcagctgaatgactctggaagcctgtgtgata 375
 QY 595 CTAGACAAATTCCTACACTGAACCTCTACACGACGCTGAATGACCTGGAGCCCTGTGTGATA 654
 Db 376 caggggggtgggggtgacagagactccctgatgaagagagactccattctggtgtgag 435
 QY 655 CAGGGGGTGGGGGTGACAGAGACTCCCTCATGATGAGGAGGACTCCATTCTGGCTGTGAGG 714
 Db 436 aaatactccaaagaatcaactctctatctgaaagagaagaatacagccctgtgctgg 495
 QY 715 AAATATCTCCAAAGAAATCACTCTCTATCTGAAAGAGAGAAATACAGGCCCTGTGCTGG 774
 Db 496 gaggtgtcagagcagaataatcatgatctctttttttgtcaacaactgtcaagaagt 555
 QY 775 GAGGTGTGAGAGCGAATCATGAGATCTTTTCTTTGTGTCMAAACTTCAGAAAGT 834
 Db 556 ttaagaagtaaggaatgaaac 577
 QY 835 TTAAGAGTAAGGAATGATAAC 856

RESULT 9

ID N30062 standard; DNA; 941 BP.
 AC N30062;
 DT 14-JUN-1992 (first entry)
 DE Sequence of a modified BamHI human interferon-alpha gene fragment.
 KW Yeast expression vector; Saccharomyces cerevisiae; promoter;
 KW glycolytic enzyme; phosphoglycerate kinase; ss.
 OS Homo sapiens.

FH Key Location/Qualifiers

FT CDS 7..534
 FT /*tag= a
 PN EP--73635-A.
 PD 09-MAR-1983.
 PF 17-AUG-1982; 408826.
 PR 25-AUG-1981; GB-025934.
 PR 23-MAR-1982; GB-008422.
 PR 16-JUN-1982; GB-017496.
 PA (KING/) KINGSMAN A J.
 PA (CELL-) CELLTECH LTD.
 PI Kingsman S M; Kingsman A J.
 DR WPI; 83-25586K/11.
 DR P-PSDB; P30163.
 PT Yeast expression vector for transforming yeasts - useful in
 PT economic prodn. of polypeptide(s) esp. human interferon-alpha
 PS Example; Fig 16; 45pp; English.
 CC The inventors claim a yeast expression vector comprising a yeast
 CC selective marker, a yeast replication origin and a yeast promoter
 CC positioned relative to a unique restriction site. The yeast
 CC promoter pref. comprises at least part of the 5' region of a gene
 CC coding for glycolytic enzyme, esp. of the yeast PGK gene located up-
 CC stream of the unique restriction site and at least part of the 3'
 CC region of the PGK gene located downstream of the site. The vector
 CC is used to express a polypeptide, eg. human interferon-alpha.
 SQ Sequence 941 BP; 315 A; 184 C; 179 G; 263 T;

DB 3; Score 496; Match 99.4%; QryMatch 57.1%; Pred. No. 1.24e-307;
 Matches 499; Conservative 0; Mismatches 3; Indels 0; Gaps 0;
 Db 37 tgtatctgctcaaccacagctgggtagcagagagacttgatgctctggcacag 96

QY 355 TGTGATCTGCCTCAAAACCCAGACGCTGGCTAGCAGGAGGACCTTGATGCTCTCGGCACAG 414
Db 97 atgaggaatatctcttctctctgcttgaaggacagacatgaatttgattcccccag 156
QY 415 ATGAGGAGAAATCTCTCTTTCTCTCTCTGCTTGAAGGACAGACGCTGACCTTGGATTTCCCCAG 474
Db 157 gaggagttggcaacacagttccaaaggctgaacacatccctgtctcctcatgatgatc 216
QY 475 GAGGAGTTGGCAACGAGTTCGAAAGGCTGAACCATCCCTGTCTCCATGAGATGATC 534
Db 217 cagcagatcttcaattcttcaagcacaaggactcatctgctgcttgggatgagaccctc 276
QY 535 CAGCAGATCTTCAATCTCTCAGCAAAAGGACTCATCTGCTGCTTGGGATGAGACCTC 594
Db 277 ctagacaaattctacatgaactctaccagcagctgaatgaactggaagcctgtgtgata 336
QY 595 CTAGACAAATCTTACACTGAATCTTACGACGAGCTCAATGACCTGCAAGCCTGTGTGATA 654
Db 337 caggggtgggggtgacagagactccctgatgaaggaggactccattctgctgtgagg 396
QY 655 CAGGGGTTGGGGGTGACAGAGACTCCCTGATGAAGGAGGACTCCATTCTGGCTGTGAGG 714
Db 397 aaatactccaagaatcaactctctatctgaaagagaagaatacagcccttgtgctgg 456
QY 715 AAATACTCCAAAGAAATCTCTATCTGAAAGAGAGAAATACAGCCCTTGTGCTGG 774
Db 457 gagggttcagagcaaaatcatgagactcttttctgtcaacaaactgcaagaagt 516
QY 775 GAGGTTGTGACAGCAAAATCATGAGATCTTTCTTTGTCAACAAACTGCAAGAAAGT 834
Db 517 ttaagaagtaagaatgaaac 538
QY 835 TTAAGAAGTAAGAATGATAAC 856

RESULT 10

ID Q11141 standard; DNA; 540 BP.
AC Q11141;
DT 03-JUN-1991 (first entry)
DE Interferon alpha as CR2 ligand.
KW Cellular receptor 2; CR2; binding site; BS; auto-immune disease;
KW Epstein-Barr Virus; EBV; B lymphocyte; ligand; interferon alpha; ss.
OS Synthetic.
FH Key Location/Qualifiers
FT CDS 58..507
FT /*tag= a
FT /product= interferon alpha
FT misc RNA 274..303
FT /*tag= b
FT /*label= BS
FT /note= *fragment pref. included*
FT misc RNA 283..315
FT /*tag= c
FT /*label= BS
FT /note= *fragment most pref. included*
PN W09103251-A.
PD 21-MAR-1991.
PF 04-SEP-1990; U05027.
PR 08-SEP-1989; US-404679.
PR 20-APR-1990; US-512118.
PA (CALIF-) CALIF INST BIOLOGIC.
PI Lernhardt W;
DR WPI; 91-101864/14..

DR P-PSDB; R11355.
PT DNA segment encoding CR-2 ligand and CR2 binding site - used to
PT treat auto-immune disease, B-cell lymphoma and inhibit
PT Epstein-Barr virus infection
PS Disclosure; Fig 2; 129pp; English.
CC The production of CR2 ligands including a binding site (BS) is
CC possible by transforming a cellular host with a recombinant DNA
CC mol. contg. this sequence. The ligand pref. includes a fragment
CC encoded by a sequence indicated in the features.
CC The ligand pref. contains only a single BS and has an
CC amino acid sequence <100 (pref. <20) residues in length.
CC The ligand may also comprise a plurality of the indicated segment
CC (tag c).
CC A therapeutic compsn. contg. the polypeptide is used to stimulate
CC or inhibit B lymphocyte proliferation in patients with B cell
CC lymphoma. B lymphocytes and myeloma's can be stimulated in
CC patients with immunodeficiencies and immunoglobulin secretion by
CC hybridoma cultures can be boosted.
CC The compsn. can be administered to inhibit infection in vitro or in
CC vivo by Epstein-Barr Virus.
CC See also Q11140-42.
SQ Sequence 540 BP; 153 A; 123 C; 132 G; 132 T;
DB 2; Score 492; Match 99.0%; QryMatch 56.6%; Pred. No. 6.23e-305;
Matches 497; Conservative 0; Mismatches 5; Indels 0; Gaps 0;
Db 13 tgtgatctgctcaaacccacagcctgggtagcaggaggaccttgatgctctggcag 72
QY 355 TGTGATCTGCCTCAAAACCCAGACGCTGGCTAGCAGGAGGACCTTGATGCTCTCGGCACAG 414
Db 73 atgaggaatatctcttctctctgcttgaaggacagacatgaatttgattcccccag 132
QY 415 ATGAGGAGAAATCTCTCTTTCTCTCTCTTGAAGGACAGACTGCTTGGATTTCCCCAG 474
Db 133 gaggagttggcaacacagttccaaaggctgaaacagccctgtctccatgagatgac 192
QY 475 GAGGAGTTTGGCAACACAGTTCGAAAGGCTGAAACCATCTCTCTCCATGAGATGATC 534
Db 193 cagcagatcttcaatctcttcagcacaaggactcatctgctctgggatgagaccctc 252
QY 535 CAGCAGATCTTCAATCTCTTACGACCAAGGACTCATCTGCTCTTGGGATGAGACCTC 594
Db 253 ctagacaaattctacatgaactctaccagcagctgaatgacctggaagcctgtgtgata 312
QY 595 CTAGACAAATTTACACTGACTCTTACCAGCAGCTGANTGACCTGGAAGCCTGTGTGATA 654
Db 313 cagggggtgggggtgacagagactccctgatgaaggaggactccattctgctgtgagg 372
QY 655 CAGGGGTTGGGGGTGACAGAGACTCCCTGATGAGAGGAGGACTCCATCTTGGCTGTGAGG 714
Db 373 aaatactccaagaatcaactctctatctgaaagagaagaatacagcccttgtgctgg 432
QY 715 AAATACTTCCAAAGAAATCACTCTCTATCTGAAGAGAGAAATACAGCCCTTGTGCTGG 774
Db 433 gagggtggcagagcagaatcatgatgactcttttcttgtcaacaaactgcaagaagt 492
QY 775 GAGGTTGTGAGAGAGAAATCATGAGATCTTTTCTTTGTCAACAAACTTGCAGAAAGT 834
Db 493 ttaagaagtaagaatgaaac 514
QY 835 TTAAGAAGTAAGAATGATAAC 856

RESULT 11

ID Q11142 standard; DNA; 720 BP.
AC Q11142;
DT 03-JUN-1991 (first entry)
DE Alkaline phosphatase-IFN alpha fusion as CR2 ligand.
KW Cellular receptor 2; CR2; binding site; BS; auto-immune disease;
KW Epstein-Barr Virus; EBV; B lymphocyte; IFN alpha; interferon;
KW fusion protein; ligand; ss.
OS Synthetic.
FH Key Location/Qualifiers
FT CDS 47..703
FT /tag= a
FT /product= alkaline phosphatase-IFN alpha fusion
FT protein
FT misc RNA 1..253
FT /tag= b
FT /label= alkaline phosphatase sequence
FT misc RNA 254..720
FT /tag= c
FT /label= IFN alpha sequence
FT misc RNA 470..511
FT /tag= d
FT /note= *fragment pref. included*
FT misc RNA 479..499
FT /tag= e
FT /note= *fragment most pref. included*
PN W09103251-A.
PD 21-MAR-1991.
PF 04-SEP-1990; U05027.
PR 08-SEP-1989; US-404679.
PR 20-APR-1990; US-512118.
PA (CALB-) CALIF INST BIOLOGIC.
PI Lernhardt W;
DR WPI; 91-101864/14.
DR P-PSDB; R11356.
PT DNA segment encoding CR-2 ligand and CR2 binding site - used to
PT treat auto-immune disease, B-cell lymphoma and inhibit
PT Epstein-Barr virus infection
PS Disclosure; Fig 3; 129pp; English.
CC The production of CR2 ligands including a binding site (BS) is
CC possible by transforming a cellular host with a recombinant DNA
CC mol. contg. this sequence. The ligand pref. includes a fragment
CC encoded by the total CDS and the fragment of tag e. The ligand pref.
CC contains only a single BS and has an amino acid sequence <100
CC (pref. <20) residues in length.
CC A therapeutic compsn. contg. the polypeptide is used to stimulate
CC or inhibit B lymphocyte proliferation in patients with B cell
CC lymphoma. B lymphocytes and myeloma's can be stimulated in
CC patients with immunodeficiencies and immunoglobulin secretion by
CC hybridoma cultures can be boosted.
CC The compsn. can be administered to inhibit infection in vitro or in
CC vivo by Epstein-Barr Virus.
CC See also Q11140-42.
SQ Sequence 720 BP; 176 A; 190 C; 182 G; 172 T;
DB 2; Score 492; Match 99.0%; OryMatch 56.6%; Pred. No. 6.23e-305;
Matches 497; Conservative 0; Mismatches 5; Indels 0; Gaps 0;
Db 209 tgtgactgcctcaaacccacagctggtagcaggagacattgactgctctggcag 268
|||||
Qy 355 TGTGATCGCTCAAAACCCACAGCCCTGGGTAGCAGGACCTTGATGCTCTGGCAG 414
Db 269 atgaggaatctctctttctctgcttgaagagacagacatgattgattcccccag 328
|||||
Qy 415 ATGAGGAGATCTCTTTTCTCTCTTGAAGCAGACGCTGACTTTGCTGATTTGCCAG 474

Db 329 gagagatttggcaaccagctccaaaaggctgaaccagcctgtcctccatgagatgac 388
|||||
Qy 475 GAGGAGTTTGCAACCCAGTTCCAAAAGGCTGAACCAATCCCTGTCTCCATGAGATGATC 534
|||||
Db 389 cagcagattctcaatctcttcagcaacaaggactcatctgctgttgggatgagaccctc 448
|||||
Qy 535 CAGCAGATCTTCAATCTCTTCAGCACAAGAGACTCATCTGCTGCTTGGATGACACCTC 594
|||||
Db 449 ctgacaaattctacactgaactctaccagcagctgaatgacctggagcctgtgtgata 508
|||||
Qy 595 CTAGACAAATTTACACTGAACCTTACCAGCAGCTGAATGACCTGGAGCCTGTGTGATA 654
|||||
Db 509 caggggtgaggggtgacagagactccctctgatgaagagagactccattctggctgtgagg 568
|||||
Qy 655 CAGGGGTGGGGGTGACAGAGACTCCCTCTGATGAAGGAGACTCCATTTCTGCTGTGAGG 714
|||||
Db 569 aaatacttccaaagaatcaatctctatctgaaagagaagaataacagcccttgcctgg 628
|||||
Qy 715 AAATACTTCCAAAGAAATCACTCTATCTGAAAGAGAGAAATAGAGCCCTTGTGCTGG 774
|||||
Db 629 gagttggcagcagcagaatcatgagatcttttttctcaacaacttgcagaagaagt 688
|||||
Qy 775 GAGTTGTGACAGCAGAAATCATGAGATCTTTTCTTGTCAACAACTTGCAGAAAGT 834
|||||
Db 689 ttaagaagtgaaggaatgaaac 710
|||||
Qy 835 TTAAGAAGTAAGGAATGATAAC 856
|||||
RESULT 12
ID N20005 standard; cDNA; 958 BP.
AC N20005;
DT 18-DEC-1992 (first entry)
DE Hybrid human leukocyte interferon LeIFA.
KW Leukocyte; interferon; antitumor; immunostimulant; virucide; plasmid;
KW plæ-IFA.
OS Homo sapiens.
FH Key Location/Qualifiers
FT CDS 61..958
FT /tag= a
PN EP--51873-A.
PD 19-MAY-1982.
PF 09-NOV-1981; 109579.
PR 10-NOV-1980; US-205579.
PR 23-FEB-1981; US-237388.
PR 25-SEP-1981; US-305657.
PA (GENE-) GENENTECH INC.
PI Goeddel DWN;
DR WPI; 82-41788E/21 (41788E).
DR P-PSDB; P20007.
PT Hybrid human leukocyte interferon(s) - useful for treating viral
PT and neoplastic diseases
PS Disclosure; Fig 1; 54pp; English.
CC This hybrid DNA fragment is encoded by the replicable expression
CC vector plasmid plæ-IFA and may be expressed in Escherichia coli for
CC production of the peptide. See also N20006-12, N20026-30 and P20008-
CC 14.
SQ Sequence 958 BP; 266 A; 213 C; 191 G; 288 T;
DB 4; Score 492; Match 99.0%; OryMatch 56.6%; Pred. No. 6.23e-305;
Matches 497; Conservative 0; Mismatches 5; Indels 0; Gaps 0;
Db 130 tgtgactgcctcaaacccacagcctggtagcaggagacattgactgctctggcag 189

Qy 355 TGTGATCTGCCTCAAMCCACGAGCTGGGTAGCAGGAGGACCTTGATGCTCTCTGGCACAG 414
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Db 190 atagagaaatctcttttctctctcttgaagacagacatgacttttgatttccccag 249
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Qy 415 ATGAGGAGAACTCTCTTTCTCTCTTGAAGGACAGACGCTGACTTTGGATTTCCCCAG 474
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Db 250 gagagatttggaaccagttccaaaaggctgaaccatccctgtcctcatgagatgac 309
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Qy 475 GAGGAGTTTGGCAAACAGTTCAAAAGGCTGAACCACTCCCTGTCTCCATGAGATGATC 534
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Db 310 cagcagatcttcaatctctctcagcaaaaggactcatctgtctgttggatgagaccctc 369
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Qy 535 CAGCAGATCTCAATCTCTTCAGCAAAAGGACTCATCTGTCTGGATGAGACCTC 594
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Db 370 ctagacaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 429
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Qy 595 CTAGACAAATTTTACACTGAACCTCTACAGCAGCTCAATGACCTGGAGAGCCTGTGTGATA 654
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Db 430 caaggggtggggctgacagagactccctgatgaaggagactccattctggtgtgaag 489
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Qy 655 CAGGGGCTGGGGCTGACAGAGACTCCCTCATGAGGAGGACTCCATTTGCTGCTGAGG 714
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Db 490 aatacttccaaagaatcactctctatctgaagagaagaatacacgacctgtgctgg 549
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Qy 715 AAATACTTCCAAAGAAATCACTCTCTATCTGAAGAGAGAAATACAGCCCTTTGCTCGG 774
|||||
Db 550 gaggtgtcagagcagaataatcatgagactcttttcttcttctcaacaacttgcagaagaat 609
|||||
Qy 775 GAGCTTGTCTGACGACGAAATCATGAGATCTTTTCTTTGTCTACAAACTTGCAGAGAACT 834
|||||
Db 610 ttaagaagtaacgaatgaatac 631
|||||
Qy 835 TTAAGAAGTAAGCAATGATAC 856
|||||

RESULT 13

ID N40013 standard; DNA; 503 BP.
AC N40013;
DT 30-NOV-1991 (first entry)
DE DNA encoding recombinant interferon-alpha A.
KW Recombinant interferon-alpha A; ss DNA; antiviral.
FH Key Location/Qualifiers
FT CDS 6
FT /*tag= a
FT misc_feature 12..503
FT /*tag= b
FT /*note= "claimed sequence"
PN EP-128467-A.
PD 19-DEC-1984.
PF 30-MAY-1984; 106214.
PR 01-JUN-1983; US-499964.
PA (HOFF) F Hoffmann-La Roche & Co.
PI DeChiara TM, Tarnowski SJ Jr.
DR WPI; 84-313909/51.
DR P-PSDB; P40022.
PT New antiviral interferon polypeptide(s) free from oligomers - with
PT cysteine residues replaced by other amino acid residues.
PS Disclosure; Fig. 1; 46pp; English.
CC The DNA encodes recombinant interferon-alpha A (rIFN aa). In this
CC protein, Cys 1 may be replaced by a glycine residue, and Cys 98
CC 99 or 100 may be replaced by Ser. These polypeptides have antiviral
CC activity, but unlike prior interferons they are free from
CC oligomers, other than dimers, and they pref. consist of stable

CC monomers only.
SQ Sequence 503 BP; 144 A; 117 C; 120 G; 122 T;
DB 3; Score 491; Match 99.6%; OryMatch 56.5%; Pred. No. 2.95e-304;
Matches 493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 9 tctgactctgcctcaaacccagcctcggttagcagagagccttgatgctcctggcacag 68
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Qy 355 TGTGATCTGCCTCAAMCCACGAGCTGGGTAGCAGGAGGACCTTGATGCTCTGGCACAG 414
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Db 69 atagagaaatctcttttctctctgcttgaagacagacatgacttttgatttccccag 128
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Qy 415 ATGAGGAGAACTCTCTTTCTCTCTTGAAGGACAGACGCTGACTTTGGATTTCCCCAG 474
|||||
Db 129 gagagatttggaaccagttccaaaaggctgaaccatccctgtcctcatgagatgac 188
|||||
Qy 475 GAGGAGTTTGGCAAACAGTTCAAAAGGCTGAACCACTCCCTGTCTCCATGAGATGATC 534
|||||
Db 189 cagcagatcttcaatctctcagcaaaaggactcatctgtctgttggatgagaccctc 248
|||||
Qy 535 CAGCAGATCTTCAATCTCTTCAGCAAAAGGACTCATCTGTCTGGATGAGACCTC 594
|||||
Db 249 ctagacaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 308
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Qy 595 CTAGACAAATTTTACACTGAACCTCTACAGCAGCTCAATGACCTGGAGAGCCTGTGTGATA 654
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Db 309 caaggggtggggctgacagagactccctgatgaaggagactccattctggtgtgaag 368
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Qy 655 CAGGGGCTGGGGCTGACAGAGACTCCCTCATGAGGAGGACTCCATTTGCTGCTGAGG 714
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Db 369 aaatacttccaaagaatcactctctatctgaagagaagaatacacgacctgtgctgg 428
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Qy 715 AAATACTTCCAAAGAAATCACTCTCTATCTGAAGAGAGAAATACAGCCCTTTGCTCGG 774
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Db 429 gaggtgtcagagcagaataatcatgagactcttttcttcttctcaacaacttgcagaagaat 488
|||||
Qy 775 GAGCTTGTCTGACGACGAAATCATGAGATCTTTTCTTTGTCTACAAACTTGCAGAGAACT 834
|||||
Db 489 ttaagaagtaagaa 503
|||||
Qy 835 TTAAGAAGTAAGCAA 849
|||||

RESULT 14

ID Q04744 standard; DNA; 573 BP.
AC Q04744;
DT 11-OCT-1990 (first entry)
DE Sequence encoding hybrid Hu-IFN alpha A/gamma.
KW Hu-IFN; interferon; tumour; cancer; ds.
OS Homo sapiens.
FH Key Location/Qualifiers
FT CDS 1..546
FT /*tag= a
PN EP-372707-A.
PD 13-JUN-1990.
PF 27-OCT-1989; 311108.
PR 28-OCT-1989; US-264271.
PA (PEST/) Pestka S.
PI Pestka S;
PI WPI; 90-180507/24.
DR P-PSDB; R05400.
PT Phosphorylated modified proteins, including modified interferon(s) -
PT used in diagnostic and therapeutic applications. eg.
PT pharmacokinetic studies and tumour treatment.

AVP5RFLA (TM)

Release 2.1D John F. Collins, Biocomputing Research Unit.
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MParch_nn n.a. - n.a. database search, using Smith-Waterman algorithm

Run on: Tue Aug 29 18:49:50 1995; MasPar time 635.43 Seconds
Tabular output not generated. 1006.825 Million cell updates/sec

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Description: (1:869) from US08249671.seq
Perfect Score: 869
N.A. Sequence: 1 GAATTCGACATTATCGTCAC.....TCATACGATCGTAACGTGA 869
Comp: CTTAAGCTCTAATAGCAGTG.....ACTATTGCTAGCATTGACGT

Scoring table: TABLE default
Gap 6

Nmatch STD : Dbase 0; Query 0

Searched: 493065 seqs, 368106350 bases x 2

Database: emb1-new6

- 1 BCT
- 2 EST1
- 3 EST2
- 4 EST3
- 5 EST4
- 6 EST5
- 7 FUN
- 8 INV1
- 9 INV2
- 10 MAM
- 11 ORG
- 12 PLN
- 13 PRI
- 14 PRO
- 15 ROD
- 16 STS
- 17 SYN
- 18 UNC
- 19 VRT
- 20 VIR

Database: EST
21 EST1
22 EST2
23 EST3
24 EST4
25 EST5

- 26 EST6
- 27 EST7
- 28 EST8
- 29 EST9
- 30 EST10
- 31 EST11
- 32 EST12
- 33 EST13
- 34 EST14
- 35 EST15
- 36 EST16
- 37 EST17
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- 77 EST57
- 78 EST58

Database: genbank89
79 BCT1
80 BCT2
81 BCT3
82 BCT4
83 BCT5
84 BCT6
85 INV1
86 INV2
87 INV3

88 INV4
89 INV5
90 MAM1
91 MAM2
92 PAT1
93 PAT2
94 PHG
95 PLN1
96 PLN2
97 PLN3
98 PLN4
99 PLN5
100 PLN6
101 PLN7
102 PRI1
103 PRI2
104 PRI3
105 PRI4
106 PRI5
107 PRI6
108 PRI7
109 PRI8
110 PRI9
111 ROD1
112 ROD2
113 ROD3
114 ROD4
115 ROD5
116 ROD6
117 ROD7
118 STR
119 STS1
120 STS2
121 STS3
122 STS4
123 SYN
124 UNA
125 VRL1
126 VRL2
127 VRL3
128 VRL4
129 VRL5
130 VRL6
131 VRT1
132 VRT2
133 VRT3

genbank-new6

Database:

134 BCT
135 EST1
136 EST2
137 EST3
138 EST4
139 EST5
140 EST6
141 EST7
142 EST8
143 INV
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146 PLN
147 PRI
148 ROD
149 STS

150 STR
151 SYN
152 UNA
153 VRL
154 VRT

Database: u-embl43.89
155 ALL

Statistics: Mean 11.226; Variance 3.164; scale 3.548

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description	Pred. No.
1	498	57.3	589	107	HUMIFNAA2A	Human alpha 2 interfe	0.00e+00
2	498	57.3	1733	107	HUMIFNAA	Human leukocyte inter	0.00e+00
3	498	57.3	1107	93	I01595	Sequence 1 from paten	0.00e+00
4	498	57.3	501	92	A03742	Synthetic gene for in	0.00e+00
5	498	57.3	589	92	A04970	Artificial sequence f	0.00e+00
6	498	57.3	1107	93	I04187	Sequence 8 from paten	0.00e+00
7	498	57.3	742	103	HSIFR6	Human messenger RNA f	0.00e+00
8	498	57.3	784	92	AL2093	oligonucleotide displ	0.00e+00
9	498	57.3	501	93	I01977	Sequence 2 from paten	0.00e+00
10	496	57.1	958	103	HSIFR7	Messenger RNA for hum	0.00e+00
11	496	57.1	941	92	AL5345	Bam HI human interfe	0.00e+00
12	496	57.1	958	93	I01766	Sequence 1 from paten	0.00e+00
13	496	57.1	941	93	I03096	Sequence 8 from paten	0.00e+00
14	496	57.1	961	108	HUMINTAZ	Human interferon-alph	0.00e+00
15	496	57.1	958	93	I04160	Sequence 1 from paten	0.00e+00
16	496	57.1	961	103	HSIFR2	Messenger RNA for hum	0.00e+00
17	494	56.8	506	93	I00069	Sequence 1 from paten	0.00e+00
18	493	56.7	495	92	A04974	Artificial sequence f	0.00e+00
19	491	56.5	573	102	ARHIFNAG	Synthetic DNA for Hu-	0.00e+00
20	489	56.3	957	93	I03492	Sequence 1 from paten	0.00e+00
21	486	55.9	1107	93	I07821	Sequence 3 from paten	0.00e+00
22	473	54.4	498	93	I01498	Sequence 1 from paten	0.00e+00
23	469	54.0	490	93	I01473	Sequence 2 from paten	0.00e+00
24	420	48.3	489	93	I07887	Sequence 3 from paten	0.00e+00
25	392	45.1	985	103	HSIFR14	Messenger RNA for hum	0.00e+00
26	392	45.1	985	93	I01788	Sequence 3 from paten	0.00e+00
27	392	45.1	985	93	I03522	Sequence 2 from paten	0.00e+00
28	392	45.1	985	107	HUMIFNAH	Human leukocyte inter	0.00e+00
29	392	45.1	985	93	I04164	Sequence 3 from paten	0.00e+00
30	390	44.9	1544	103	HSIFNA6	Human interferon alph	0.00e+00
31	390	44.9	504	92	A03749	Synthetic gene for in	0.00e+00
32	390	44.9	1126	103	HSIFNA14	Human interferon alph	0.00e+00
33	390	44.9	838	93	I08303	Sequence 1 from paten	0.00e+00
34	390	44.9	504	93	I01985	Sequence 7 from paten	0.00e+00
35	390	44.9	759	93	I08304	Sequence 3 from paten	0.00e+00
36	389	44.8	1069	93	I01598	Sequence 2 from paten	0.00e+00
37	389	44.8	1069	93	I04188	Sequence 9 from paten	0.00e+00
38	389	44.8	1626	103	HSIFD3	Human gene for leukoc	0.00e+00
39	389	44.8	1626	107	HUMIFNAH2	Human leukocyte inter	0.00e+00
40	388	44.6	753	108	HUMINFL	Human leukocyte inter	0.00e+00
41	386	44.4	675	92	AL2652	alpha 88 (IFN alpha)-	0.00e+00
42	386	44.4	1873	103	HSIFD2	Human gene for leukoc	0.00e+00
43	386	44.4	735	103	HSIFR16	Human mRNA for interf	0.00e+00
44	386	44.4	833	93	I08305	Sequence 1 from paten	0.00e+00

45 386 44.4 675 107 HUMFNA Human interferon alph 0.00e+00

ALIGNMENTS

RESULT 1 HUMFNA2A 589 bp DNA PRI 08-NOV-1994
LOCUS Human alpha 2 interferon gene, 3' end.
DEFINITION M29883
ACCESSION
KEYWORDS alpha-interferon; interferon.
SOURCE Human DNA.

ORGANISM Homo sapiens
Eukaryota; Animalia; Chordata; Vertebrata; Mammalia; Theria;
Eutheria; Primates; Haplorhini; Catarrhini; Homiidae.

REFERENCE 1 (bases 1 to 589)
AUTHORS Weber, H. and Weissmann, C.
TITLE Formation of genes coding for hybrid proteins by recombination
between related, cloned genes in E. coli

JOURNAL Nucleic Acids Res. 11 (16), 5661-5669 (1983)

MEDLINE 83299241

COMMENT NCBI gi: 184585

FEATURES Location/Qualifiers

source

1..589

/organism="Homo sapiens"

<1..498

/gene="IFNA"

/map="9p22"

/note="alpha 2 interferon; NCBI gi: 386795"

/codon_start=1

/gdb_xref="600-119-328"

/translation="CDLPQTHSLGSRRTMLLAQMRRLISLGLKDRHFGPQEFQ

NQFKATIPVLHMIQQINLFSTKSSANDEFLLDKYFTELYQQLNDLEACVIQ

VGVEPTPLAKEDSLAVRKYQITLYIKKXKSPCAWEVVRAEIMRSFSLNLAQES

LRSE"

BASE COUNT 165 a 135 c 135 g 154 t

ORIGIN

DB 107; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 0.00e+00;
Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Db 1 tgtgactgcctcaaacccacagcctggtagcaggagaccttgatgctctggcacag 60

Qy 355 TGTGATCTGCCTCAAAACCACAGCCTGGGTAGCAGGAGACCTTGATGCTCTGGCACAG 414

Db 61 atgaggagaatctcttctctcctgcttgaggacagacatgaattggattccccag 120

Qy 415 ATGAGGAGATCTCTCTTTCTCTGCTTGAAGGACAGACGCTGCTTGGATTCCCCAG 474

Db 121 gaggagtttgcaacagcttccaaaggctgaacacatccctgtcctccatgatgatc 180

Qy 475 GAGGAGTTGGCAGACAGTTCGAAAGGCTGAAACCATCCTGCTCTCATGAGATGATC 534

Db 181 cagcagatctcaactcttcacgacaaaggactcatctgctgcttgaggatgagaccctc 240

Qy 535 CAGCAGATCTTCAATCTCTTTCAGCAAAAGGACTCATCTGCTGCTGGGATGAGACCTTC 594

Db 241 ctagacaaattctcaactgaactctaccagcagctgaatgaactgagagcctgtgtgata 300

Qy 595 CTAGACAAATTCTACCTGAATCTACCGACGCTGAATGACCTGGAGCCCTGTGTGATA 654

Db 301 cagggggtgggggtgacagagactccccgatgaaggaggagcattccattcgtggtgagg 360

Qy 655 CAGGGGGTGGGGGTGACAGAGACTCCCCGTGATGAAGGAGGACTCCATTCTGGCTGTGAGG 714

Db 361 aaatactccaaagaatcaactctctatctgaaagagaagaataacagcccttgctgctgg 420

Qy 715 AAATACTTCCAAAGATCACTCTCTATCTGAAAGAGAGAAATACAGCCCTTGTGCTCG 774

Db 421 gaggtgtcagagagaatacatgatctctttttttgtccaacaaactgtcagaagaagt 480

Qy 775 GAGGTGTCTAGACAGAGAAATCATGATCTTTTCTTGTCTCAAACTTGCAGAAAGT 834

Db 481 ttaagaagtaaggaatgaaac 502

Qy 835 TTAAGAGTAAGCAATGATAAC 856

RESULT 2

LOCUS HUMFNA 1733 bp DNA PRI 15-NOV-1994
DEFINITION Human leukocyte interferon (leif) alpha-a gene.

ACCESSION J00207 V00544

KEYWORDS alpha-interferon; interferon.

SOURCE Human cell-line K9-1, cDNA to mRNA and clone Hif-SN206; DNA from human genomic library of Lawn et al; cDNA to lymphocyte mRNA, clone 202 (see comment).

ORGANISM Homo sapiens

Eukaryota; Animalia; Chordata; Vertebrata; Mammalia; Theria;
Eutheria; Primates; Haplorhini; Catarrhini; Homiidae.

REFERENCE 1 (bases 451 to 1410)

AUTHORS Goeddel, D.V., Yelverton, E., Ullrich, A., Heyneker, H.L., Miozzari, G., Holmes, W., Seeburg, P.H., Dull, T.J., May, L., Stebbing, N., Creas, R., Maeda, S., McCandless, R., Sloma, A., Tabor, J.M., Gross, M., Familletti, P.C. and Pestka, S.
TITLE Human leukocyte interferon produced by E. coli is biologically active

JOURNAL Nature 287 (5781), 411-416 (1980)

MEDLINE 81052322

REFERENCE 2 (bases 659 to 1283)

AUTHORS Maeda, S., McCandless, R., Gross, M., Sloma, A., Familletti, P.C., Tabor, J.M., Evinger, M., Levy, W.P. and Pestka, S.
TITLE Construction and identification of bacterial plasmids containing nucleotide sequence for human leukocyte interferon
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 77 (12), 7010-7013 (1980)

MEDLINE 81175079

REFERENCE 3 (bases 529 to 1271)

AUTHORS Streuli, M., Nagata, S. and Weissmann, C.
TITLE At least three human type alpha interferons: structure of alpha 2
JOURNAL Science 209 (4463), 1343-1347 (1980)

MEDLINE 81015442

REFERENCE 4 (bases 451 to 1408)

AUTHORS Goeddel, D.V., Leung, D.W., Dull, T.J., Gross, M., Lawn, R.M., McCandless, R., Seeburg, P.H., Ullrich, A., Yelverton, E. and Gray, P.W.
TITLE The structure of eight distinct cloned human leukocyte interferon cDNAs

JOURNAL Nature 290 (5801), 20-26 (1981)

MEDLINE 81148795

REFERENCE 5 (bases 1 to 1733)

AUTHORS Lawn, R.M., Gross, M., Houck, C.M., Franke, A.E., Gray, P.V. and Goeddel, D.V.

TITLE DNA sequence of a major human leukocyte interferon gene

JOURNAL Proc. Natl. Acad. Sci. U.S.A. 78 (9), 5435-5439 (1981)

MEDLINE 82060261

REFERENCE 6 (bases 931 to 994)

AUTHORS Bowden, D.W., Mao, J., Gill, T., Hsiao, K., Lillquist, J.S., Testa, D. and Vovis, G.F.
TITLE Cloning of eukaryotic genes in single-strand phage vectors: the human interferon genes

JOURNAL Gene 27 (1), 87-99 (1984)

MEDLINE 84183614
COMMENT
IFN-alpha-a is one of at least 13 human leukocyte interferon messages. These sequences represent members of a family of homologous but distinct proteins, some of which may be pseudogenes. IFN-alpha-a codes for a protein having a signal peptide of 23 amino acids and a mature peptide of 165 amino acids, leading to a calculated Mw of 19,390. The sequences denoted alpha-a ([1],[4]) are considered to be from the same gene which encodes sequences denoted alpha-2 ([3],[5]). An interferon protein denoted IFN-alpha-a, which has been sequenced, may not be coded for by this sequence. See other entries for human interferons. Complete source information:
Human cell-line K9-1, cDNA to mRNA [1],[2],[4] and clone Hif-SN206 [3]; DNA from human genomic library of Lawn et al [5]; cDNA to lymphocyte mRNA, clone 202 [6].

NCBI gi: 184581
FEATURES
source Location/Qualifiers
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/organism="Homo sapiens"
/sequenced_mol="DNA"
443..1409
/gene="IFNA"
/map="9p22"
/note="alternative; G00-119-328"
443..1584
/gene="IFNA"
/map="9p22"
/note="alternative; G00-119-328"
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/map="9p22"
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511..1077
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/product="interferon alpha-a"
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CAWEVRAEINHSFSLSTNLQESLRSE"
580..1074
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/map="9p22"
/note="G00-119-328"
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/map="9p22"
/citation={4}
replace(1109,**) conflict

BASE COUNT 567 a 302 c 328 g 536 t
ORIGIN Chromosome 9p22-pl3; 317 bp upstream of PvuII site.
DB 107; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 0.00e+00;
Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 580 tgtgatcgctcaaacccacagcctggtagcaggagccttgatgctcctggcacag 639
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Qy 355 TGTGATCTGCTCAAAACCCACAGCCTGGGTAGCAGGAGCCTTGATGCTCTGGGCACAG 414
Db 640 atgaggagaatctcttttctcctgcttgaagcacagacatgactttggattccccag 699
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Qy 415 ATGAGGAATCTCTCTTTCTGCTTGAAGCAGACGATGACTTTGGATTTCCCCAG 474
Db 700 gagggattggcaaccagttccaaaaggctgaaacccatccctgctccatgagatgac 759
|||||
Qy 475 GAGGAGTTGGCAACCACTTCCAAAAGGCTGAAACCATCTCTCTCATGAGATGATC 534
Db 760 cagcagatctcaatctcttcagcaaaaggactcatctgctgtgggatgagaccctc 819
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Qy 535 CAGCAGATCTCAATCTCTTCAGCACAAAGGACTCATCTGCTGCTTGGGATGAGACCTC 594
Db 820 ctagacaaattctacaatgaactctaccagcagctgaatgaacctggaagcctgtgtgata 879
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Qy 595 CTAGACAAATTTCACTGAACCTTACCAGCAGCTGAATGACCTGGAAGCCTGTGTGATA 654
Db 880 cagggggtgggggtgacagagactccctgatgaaggagggaactccattctgctgtgagg 939
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Qy 655 CAGGGGCTGGGGGTGACAGAGACTCCCTCGATGAAGGAGGACTCCATTCTGGCTGTGAGG 714
Db 940 aaatactccaagaatcacctctctatctgaaagagaagaatacacgcccttgctcgg 999
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Qy 715 AAATACTTCCAAGAAATCACTCTCTATCTGAAGAGAGAAATACAGCCCTTGTGCTGG 774
Db 1000 gaggtgtcagacagaataatcatgagatcttttcttcttgcacaacttgcaagaagt 1059
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Qy 775 GAGGTTGTCAGAGCAGAAAATCATGAGATCTTTTTTCTTTGTGCAACAACACTTCGCAAGAAAGT 834
Db 1060 ttaagaagtaaggaataaacaac 1081
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Qy 835 TTAAAGAGTAAGGAATGATAAC 856

RESULT 3
LOCUS 101595 1107 bp ss-DNA PAT 05-MAR-1993
DEFINITION Sequence 1 from patent US 4810645.
ACCESSION 101595
KEYWORDS
SOURCE Unknown.

ORGANISM Unknown.
REFERENCE 1 (bases 1 to 1107)
AUTHORS Goeddel, D.V. and Pestka, S.
TITLE Microbial production of mature human leukocyte interferon K and L
JOURNAL Patent: US 4810645-A 1 07-MAR-1989;
Hoffmann-La Roche Inc.;
Nutley, NJ;

COMMENT NCBI gi: 269892
FEATURES Location/Qualifiers
source 1..1107
/organism="unknown"
BASE COUNT 305 a 232 c 223 g 347 t
ORIGIN

DB 93; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 0.00e+00;
Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 180 ttgtatctgcctcaaacccacagcctgggtgagcaggagacctgatctctcctggcacag 239
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Qy 355 TGTGATCTGCTCAACCCACAGCCTGGGTAGCAGGAGCCTTGATGCTCTGGCACAG 414
Db 240 atgaggagaatctctctttctcctgcttgaaggacagacatgaactttggattccccag 299
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Qy 415 ATGAGGAGAAATCTCTCTTCCTGCTGTGAGGACAGACGCTGACTTTGGATTTCCCGAG 474
Db 300 gaggagttggcaaacaggttccaaaaggctgaaccatccctgtcctccatgagatgac 359
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Qy 475 GAGGAGTTTGGCAACAGTTCCAAAAGGCTCAAACCATCCCTGCTCCTCATGAGATC 534
Db 360 cagcagatctcaatctcttcagcaaaaggacctcatctgctgctgggatgagaccctc 419
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Qy 535 CAGCAGATCTTCAATCTCTTTCAGCAAAAGGACTCATCTGCTGCTTGGGATGAGCCCTC 594
Db 420 ctagacaaattctacatgaactctaccagcagtgaatgacctggaagcctgtgtgata 479
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Qy 595 CTAGACAAATTTCACTGACTCTACCCAGCAGCTGAATGACCTGGAGCCTGTGTGATA 654
Db 480 cagggggtgggggtgacagagactccctctgatgaaggaggactccattctggctgtgagg 539
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Qy 655 CAGGGGTGGGGGTGACAGAGACTCCCTGATCAAGAGGAGACTCCATTTGGGCTGTGAGG 714
Db 540 aaatacttcaagaagaatcactctctatctgaaagagaagaatacagcccttgtgctgg 599
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Qy 715 AAATACTTCCAAGAATCACTCTATCTGAAAGAGAAATACAGCCCTTGTGCTGG 774
Db 600 ggggtgtcagcagcagaatcatgatctctttcttttgtcaacaacttgcagaagaagt 659
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Qy 775 GAGGTTGTGAGAGCAAAATCATGATGATCTTTTCTTTGTCAACAACCTTCCAGAAAGT 834
Db 660 ttaagaagtaagaatgaaac 681
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Qy 835 TTAAGAGTAAGCAATGATAC 856

RESULT 4
LOCUS A03742 501 bp DNA PAT 07-FEB-1994
DEFINITION Synthetic gene for interferon alpha-2(Arg).
ACCESSION A03742
KEYWORDS .
SOURCE unidentified.
ORGANISM unclassified.

REFERENCE 1 (bases 1 to 501)
AUTHORS Hauptmann, R., Sweetly, P., Meindl, P., Guenther, A., Falkner, E.,
Bodo, G. and Maurer-Pogoy, I.
TITLE Hybrid interferons, their use as medicaments and as intermediates
in the preparation of antibodies, their use and process for their
preparation
JOURNAL Patent: EP 0236920-A 2 16-SEP-1987;
BOEHRINGER INGELHEIM INTERNATIONAL GmbH
COMMENT NCBI gi: 490340
FEATURES Location/Qualifiers
source 1..501
/organism="Artificial gene"
CDS 1..501
/note="NCBI gi: 490341"
/product="interferon alpha-2(Arg)"
/translation="MCDLPQTHSLGSRRTMLLAQMRRISLFSLCKDRDFGFPQEEF
GNQPKAETIPVLHEMIQQIFNLFSTKDSAAWDETLLDKFYELYQQLANDLEACVIQ
GVGVTEPLMKEDSILAVRKYFQRTITLYLKEKKYSPCAMEVVRAEINRSFSLTNLQE
SIRSEK"

BASE COUNT 141 a 116 c 123 g 121 t
ORIGIN
DB 92; Score 498; Match 100.0%; QryMatch 57.3%; Pred. No. 0.00e+00;
Matches 498; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Db 4 ttgtatctgcctcaaacccacagcctgggtgagcaggagacctgatctcctggcacag 63
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Qy 355 TGTGATCTGCTCAACCCACAGCCTGGGTAGCAGGAGCCTTGATGCTCTGGCACAG 414
Db 64 atgaggagaatctctctttctcctgcttgaaggacagcgtgactttggattccccag 123
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Qy 415 ATGAGGAGAAATCTCTCTTCCTGCTGTGAGGACAGACGCTGACTTTGGATTTCCCGAG 474
Db 124 gaggagttggcaaacaggttccaaaaggctgaaccatccctgtcctccatgagatgac 183
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Qy 475 GAGGAGTTTGGCAACAGCTTCCAAAAGGCTCAAACCATCCCTGCTCCTCATGAGATC 534
Db 184 cagcagatctcaatctcttcagcaaaaggacctcatctgctgctgggatgagaccctc 243
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Qy 535 CAGCAGATCTTCAATCTCTTTCAGCAAAAGGACTCATCTGCTGCTTGGGATGAGCCCTC 594
Db 244 ctagacaaattctacatgaactctaccagcagtgaatgacctggaagcctgtgtgata 303
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Qy 595 CTAGACAAATTTCACTGACTCTACCCAGCAGCTGAATGACCTGGAGCCTGTGTGATA 654
Db 304 cagggggtgggggtgacagagactccctctgatgaaggaggactccattctggctgtgagg 363
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Qy 655 CAGGGGTGGGGGTGACAGAGACTCCCTGATCAAGGAGGAGACTCCATTTGGGCTGTGAGG 714
Db 364 aaatacttcaagaagaatcactctctatctgaaagagaagaatacagcccttgtgctgg 423
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Qy 715 AAATACTTCCAAGAATCACTCTATCTGAAAGAGAAATACAGCCCTTGTGCTGG 774
Db 424 ggggtgtcagcagcagaatcatgatctctttcttttgtcaacaacttgcagaagaagt 483
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Qy 775 GAGGTTGTGAGAGCAAAATCATGATGATCTTTTCTTTGTCAACAACCTTCCAGAAAGT 834
Db 484 ttaagaagtaagaatga 501
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Qy 835 TTAAGAGTAAGCAATGA 852

RESULT 5

LOCUS A04970 589 bp DNA PAT 13-JUL-1993
DEFINITION Artificial sequence for interferon-alpha 2.
ACCESSION A04970
KEYWORDS interferon alpha II.
SOURCE unidentified.
ORGANISM unidentified.
REFERENCE 1 (bases 1 to 589)
AUTHORS Weissmann, C. and Weber, H.
TITLE Methods of producing hybrid DNA sequences and hybrid polypeptides
and DNA sequences produced by them
JOURNAL Patent: EP 0141484-A 2 15-MAY-1985;
Biogen, Inc.; BIOGEN, INC
COMMENT NCBI gi: 412536
FEATURES Location/Qualifiers
1..589
/organism="Artificial sequences"
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/note="NCBI gi: 412537"
/codon start=1
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LRSE"
BASE COUNT 165 a 135 c 135 g 154 t
ORIGIN
DB 92; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 0.00e+00;
Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 1 ttgtatctgctcaaacccacagctgggtagcaggagacattgatctctctggcacag 60
Qy 355 TGTGATCTGCCTCAAAACCCACAGCGCTGGGTAGCAGGAGACCTTGATGCTCTGGCACAG 414
Db 61 atgaggagaatctctctttctctgctggtgaaggacagacatgaatttggattccccag 120
Qy 415 ATGAGGAGATCTCTTTTCTCTGCTTGAGGAGACAGCTGACTTTGGATTTCCCCAG 474
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Qy 535 CAGCAGATCTTCAATCTCTTTCAGCAAAAGGACTCATCTGCTCTGGGATGAGACCCCTC 594
Db 241 ctagacaaattctcaactgaactctaccagcagctgaatgaactggaagcctgtgtgata 300
Qy 595 CTAGACAAATTTCTACACTGAACTCTACACAGCTGAAATGACCTGAAAGCCCTGTGTGATA 654
Db 301 cagggggtgggggtgacagagactccccctgatgaaggaggactccattctggtgtgagg 360
Qy 655 CAGGGGTTGGGGGTGACAGAGACTCCCTCATGAGAGGAGACTCCATTTCTGGCTGTGAGG 714
Db 361 aaatacttccaaagaatcaactctctatctgaaagagagaataacagcccttgtgctgg 420
Qy 715 AAATACTTCCAAAGAAATCACTCTATCTGAAAAGAGAAATACAGGCCCTTTGCTCTGG 774
Db 421 gaggtgtcagagcagaataatcatgagatctttttctttgtccaacaacttgcagaagaat 480
Qy 775 GAGGTTGTCAGAGCGAAAATCATGAGATCTTTTCTTTTGTTCACAAACTTGCAGAAAGT 834
Db 481 ttaagaagtaaggaatgaaac 502

Qy 835 TTAAGAGTAAGCAATGATAAC 856
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RESULT 6
LOCUS I04187 1107 bp ss-DNA PAT 05-MAR-1993
DEFINITION Sequence 8 from patent US 4678751.
ACCESSION I04187
KEYWORDS
SOURCE Unknown.
ORGANISM Unknown.
REFERENCE 1 (bases 1 to 1107)
AUTHORS Goeddel, D.V.
TITLE Hybrid human leukocyte interferons
JOURNAL Patent: US 4678751-A 8 07-JUL-1987;
Genentech, Inc.;
San Francisco, CA;
COMMENT NCBI gi: 268733
FEATURES Location/Qualifiers
source 1..1107
/organism="unknown"
BASE COUNT 305 a 232 c 223 g 347 t
ORIGIN
DB 93; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 0.00e+00;
Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 180 ttgtatctgctcaaacccacagctgggtagcaggagacattgatctctctggcacag 239
Qy 355 TGTGATCTGCCTCAAAACCCACAGCGCTGGGTAGCAGGAGACCTTGATGCTCTGGCACAG 414
Db 240 atgaggagaatctctctttctctgctggtgaaggacagacatgaatttggattccccag 299
Qy 415 ATGAGGAGATCTCTTTTCTCTGCTTGAGGAGACAGCTGACTTTGGATTTCCCCAG 474
Db 300 gagggtttgcaacacagttccaaaggctgaaacccatccctgtcctccatgagatgac 359
Qy 475 GAGGAGTTGGCAACAGTTCCAAAAGGCTGAAAACCATCCCTGTCTCCATGAGATGATC 534
Db 360 cagcagatcttcaactctcttcagcacaaggactcatctgctgcttggtggatgagaccctc 419
Qy 535 CAGCAGATCTTCAATCTCTTTCAGCAAAAGGACTCATCTGCTCTGGGATGAGACCCCTC 594
Db 420 ctagacaaattctcaactgaactctaccagcagctgaatgaactggaagcctgtgtgata 479
Qy 595 CTAGACAAATTTCTACACTGAACTCTACACAGCTGAAATGACCTGGAAGCCCTGTGTGATA 654
Db 480 cagggggtgggggtgacagagactccccctgatgaaggaggactccattctggtgtgagg 539
Qy 655 CAGGGGTTGGGGGTGACAGAGACTCCCTCATGAGAGGAGACTCCATTTCTGGCTGTGAGG 714
Db 540 aaatacttccaaagaatcaactctctatctgaaagagagaataacagcccttgtgctgg 599
Qy 715 AAATACTTCCAAAGAAATCACTCTATCTGAAAAGAGAAATACAGGCCCTTTGCTCTGG 774
Db 600 gaggtgtcagagcagaataatcatgagatctttttctttgtccaacaacttgcagaagaat 659
Qy 775 GAGGTTGTCAGAGCGAAAATCATGAGATCTTTTCTTTTGTTCACAAACTTGCAGAAAGT 834
Db 660 ttaagaagtaaggaatgaaac 681
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Qy 835 TTAAGAGTAAGCAATGATAAC 856

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RESULT 7
LOCUS HSIFR6 742 bp RNA PRI 03-APR-1995
DEFINITION Human messenger RNA for leukocyte (alpha-2) interferon.
ACCESSION V00548
KEYWORDS complementary DNA; interferon; signal peptide.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Animalia; Metazoa; Chordata; Vertebrata; Mammalia;
Theria; Eutheria; Primates; Haplorhini; Catarrhini; Hominoidea.
REFERENCE 1 (bases 1 to 742)
AUTHORS Streuli,M., Nagata,S. and Weissmann,C.
TITLE At least three human type alpha interferons: structure of alpha 2
JOURNAL Science 209 (4463), 1343-1347 (1980)
MEDLINE 81015442
COMMENT NCBI gi: 32740
FEATURES
    source
        location/Qualifiers
            1..742
            /organism="Homo sapiens"
    prim_transcript
        1..742
        /notes="primary transcript"
    CDS
        1..549
        /note="reading frame (preinterferon); NCBI gi: 32741"
        /codon_start=1
        /translation="LLVALLVLISCKSSVCGDLPQTHSLGSRRTLLMLAQMRRLSLF
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        /notes="reading frame (leader peptide)"
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        1..742
        /notes="mRNA"
    mat_peptide
        52..546
        /note="reading frame (interferon)"
    polyA_site
        742
        /notes="polyA addition site"
BASE COUNT 202 a 170 c 168 g 202 t
ORIGIN
DB 103; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 0.00e+00;
Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 52 tgtgatctgctcaaacacacagcctgggttagcaggagccttgatgctcctggcacag 111
Qy 355 TGTGATCTGCTCAAAACCCACAGCGCTGGGTAGCAGGAGACCTTGATGCTCGGACAG 414
Db 112 atgaggagaatctcttttctcctgctgaaggacagacatgaattggattccccag 171
Qy 415 ATGAGAGAATCTCTCTTTCTCTGCTTCTGAGCAGACGCTGACCTTGGATTCCCCAG 474
Db 172 gaggaattggcaacaggttccaaaggctgaacacatccctgtcctccatgatgatc 231
Qy 475 GAGGAGTTGGCAACCAAGTTCCAAAGGCTGAACCATCCCTCTCTCCATGATGATC 534
Db 232 cagcagatctcaatctcttcacgacaaaggactcatctgctgcttggtgagagaccctc 291
Qy 535 CAGCAGATCTTCAATCTCTTCAGCACAAGAGACTCATCTGCTGTGGGATGAGACCCCTC 594
Db 292 ctgagcaattctacactgaactctaccacagactgaatgaactgagagcctctgtgata 351
Qy 595 CTAGCAAAATTTACTACTGAACCTCTACACGACCTGAATGACCTGGAAGCCTGTGTGATA 654
Db 352 caggggggtgggggtgacagagactccctgatgaaggaggactccattctggtgtgagg 411
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Qy 655 CAGGGGTGGGGGTGACAGAGACTCCCTGATCAAGGAGGAGCTCCATTTCTCGCTGTGAGG 714
Db 412 aaatacttccaagaatcactctctatctgaagaagaagaatcacagccttgtgctgg 471
Qy 715 AAATACTTCCAAGAATCACTCTATCTGAAGAGAGAAGAAATACAGGCCCTTGTGCTGG 774
Db 472 gaggtgtgcagagcagaatcatgatgactcttttctgtccaacaaactgcagaagaagt 531
Qy 775 GAGGTGTGCAGAGCAGAAATCATGAGATCTTTTCTTTGTCAACAAACTTCAAGAAAGT 834
Db 532 ttaagaagtgaagaatgaaac 553
Qy 835 TTAAGAAGTAAGAAATGATTAAC 856
RESULT 8
LOCUS A12093 784 bp DNA PAT 06-DEC-1993
DEFINITION oligonucleotide displaying a biological or immunological activity
of human interferon.
ACCESSION A12093
KEYWORDS .
SOURCE unidentified.
ORGANISM unclassified.
REFERENCE 1 (bases 1 to 784)
AUTHORS Weissmann,C.
TITLE DNA sequences, recombinant DNA molecules and processes for
producing human interferon-alpha like polypeptides
JOURNAL Patent: EP 0032134-A 15 15-JUL-1981;
BIOGEN N.V
COMMENT NCBI gi: 491271
FEATURES
    source
        location/Qualifiers
            1..784
            /organism="Artificial sequences"
    CDS
        1..563
        /note="NCBI gi: 833176"
        /codon_start=2
        /product="protein with the immunological activity of human
        interferon"
        /translation="GGGGLLVALLVLISCKSSVCGDLPQTHSLGSRRTLLMLAQMR
        RLSLFCIKDRHDFGFPQEEFGNQFQKAEIPVLHEMIQIENLFSTKDSAAWDETLL
        DKFTELYQQLNDLEACVIGGVGTETPLMKEDSILAVRYKFORITLYLKEKYSPCA
        WEVWRAEIMRSFSLSTNLQESLSKE"
BASE COUNT 202 a 199 c 181 g 202 t
ORIGIN
DB 92; Score 498; Match 99.6%; QryMatch 57.3%; Pred. No. 0.00e+00;
Matches 500; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 65 tgtgatctgctcaaacacacagcctgggttagcaggagccttgatgctcctggcacag 124
Qy 355 TGTGATCTGCTCAAAACCCACAGCGCTGGGTAGCAGGAGACCTTGATGCTCGGACAG 414
Db 125 atgaggagaatctctcttttctcctgctgaaggacagacatgaattggattccccag 184
Qy 415 ATGAGAGAATCTCTCTTTCTCTGCTTCTGAGCAGACGCTGACCTTGGATTCCCCAG 474
Db 185 gaggaattggcaacaggttccaaaggctgaacacatccctgtcctccatgatgatc 244
Qy 475 GAGGAGTTGGCAACCAAGTTCCAAAGGCTGAACCATCCCTCTCTCCATGATGATC 534
Db 245 cagcagatcttcaatctcttcacgacaaaggactcatctgcttggtgagagaccctc 304
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QY 535 CACGAGATCTTCAATCTCTTCACGACAAAAGGACTCATCTGCTGCTGGATGACAGCCCTC 594

Db 305 ctagacaaattctacaactgaactctaccagcagctgaatgaactgaaagcctgtgtgata 364
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QY 595 CTAGACAAATTTACACTGAACCTCTACACGACGCTGAATGACCTGGAGCCCTGTGTGATA 654
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Db 365 cagggggtgggggtgacagagactccctgatgaagaggagactccattctggtctggaag 424
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QY 655 CAGGGGGTGGGGGTGACAGACATCCCTGATGAAGGAGGACTCCATTCTGGCTGTGAGG 714
|||||

Db 425 aaatacttccaagaatacaactctctatctgaagagaagaataacagaccctgtgctgg 484
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QY 715 AAATACCTTCCAAAGAAATCACTCTCTATCTGAAGAGCAAGAAATACAGGCCCTTGTGCTGG 774
|||||

Db 485 gaggtgtcgagcagcagaatacatgatgactctttttttgttcaacaacttgcagaagaat 544
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QY 775 GAGCTGTGACAGCAGAAATCATGAGATCTTTTCTTGTCAACAACTTCCAGAAAGT 834
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Db 545 ttaagaagtaagaatgaaac 566
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QY 835 TTAAGAAGTAAGCAATGATAAC 856
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RESULT 9

LOCUS I01977 501 bp ss-DNA PAT 05-MAR-1993

DEFINITION Sequence 2 from patent US 4917887.

ACCESSION I01977

KEYWORDS .

SOURCE Unknown.

ORGANISM Unknown.

REFERENCE 1 (bases 1 to 501)

AUTHORS Hauptmann,R., Swetly,P., Meindl,P., Adolf,G., Falkner,E., Bodo,G. and Maurer-Fogy,I.

TITLE Hybrid interferons, their use as pharmaceutical compositions and as thereof and processes for the preparation of antibodies and the use Patent: US 4917887-A 2 17-APR-1990;

JOURNAL Boehringer Ingelheim International GmbH;

DE;

COMMENT NCBI gi: 271078

FEATURES Location/Qualifiers

source 1..501

BASE COUNT 141 a 116 c 123 g 121 t

ORIGIN

DB 93; Score 498; Match 100.0%; QryMatch 57.3%; Pred. No. 0.00e+00;

Matches 498; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 4 ttgtgctgcctcaaccacagcctgggttagcaggagacttgatgactcctggcacag 63
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QY 355 TGTGATCTGCTCAAAACCACAGCCCTGGGTAGCAGGAGACCTTGATGCTCTGGCAGAC 414
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Db 64 atgaaggagaatctctctttctctgttgaagacagacgtaacttggatttccccag 123
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QY 415 ATGAGAGAAATCTCTTTCTCTGCTTTGAGGACAGACGTCACCTTTGGATTTCCCGAC 474
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Db 124 gaggtgttggcaaccagttccaagaagtgaaaccatccctgctccatgatgatgc 183
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QY 475 GAGGAGTTTGGCAACCGATCTCCAAAGGCTGAACCATCCCTGCTCTCCATGATGATC 534
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Db 184 caqcgatcttcaatctcttcagcacaagaagactcatctgctgttgggatgagaccctc 243
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QY 535 CACGAGATCTTCAATCTCTTCACGACAAAAGGACTCATCTGCTGCTGGATGACAGCCCTC 594

Db 244 ctagacaaattctacaactgaactctaccagcagctgaatgaactgaaagcctgtgtgata 303
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QY 595 CTAGACAAATTTACACTGAACCTCTACACGACGCTGAATGACCTGGAGCCCTGTGTGATA 654
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Db 304 cagggggtgggggtgacagagactccctgatgaagaggagactccattctggtctggaag 363
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QY 655 CAGGGGGTGGGGGTGACAGACATCCCTGATGAAGGAGGACTCCATTCTGGCTGTGAGG 714
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Db 364 aaatacttccaagaatacaactctctatctgaagagaagaataacagaccctgtgctgg 423
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QY 715 AAATACCTTCCAAAGAAATCACTCTCTATCTGAAGAGCAAGAAATACAGGCCCTTGTGCTGG 774
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Db 424 gaggtgtcgagcagcagaatacatgatgactctttttttgttcaacaacttgcagaagaat 483
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QY 775 GAGCTGTGACAGCAGAAATCATGAGATCTTTTCTTGTCAACAACTTCCAGAAAGT 834
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Db 484 ttaagaagtaagaatga 501
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QY 835 TTAAGAAGTAAGCAATGA 852
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RESULT 10

LOCUS HSIFR7 958 bp RNA PRI 12-SEP-1993

DEFINITION Messenger RNA for human leukocyte (alpha) interferon.

ACCESSION V00549

KEYWORDS complementary DNA; interferon.

SOURCE human.

ORGANISM Homo sapiens

Eukaryotae; mitochondrial eukaryotes; Metazoa/Eumycota group; Metazoa; Eumetazoa; Bilateria; Coelomata; Deuterostomia; Chordata; Vertebrata; Gnathostomata; Osteichthyes; Sarcopterygii; Chonata; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Archonta; Primates; Catarrhini; Homnidae; Homo.

REFERENCE 1 (bases 1 to 958)

AUTHORS Goeddel,D.V., Leung,D.W., Dull,T.J., Gross,M., Lawn,R.M., McCandless,R., Seeburg,P.H., Ullrich,A., Yelverton,E. and Gray,P.W.

TITLE The structure of eight distinct cloned human leukocyte interferon cDNAs

JOURNAL Nature 290 (5801), 20-26 (1981)

MEDLINE 81148795

COMMENT NCBI gi: 32744

FEATURES Location/Qualifiers

source 1..958

/organism="Homo sapiens"

<1..>958

/note="mRNA"

61..627

/note="reading frame (LeIF); NCBI gi: 32745"

/codon start=1

/translation="MALTFALLVALLVLSKSSCSVCGDLPQTHSLGSRRTIMLLAQMRKISLSFKORHDFGPQEEFGNPFQKAEIPVLHEMIQQIFNLFSTKSSSAAMDETLDKFTELYQQLNDLEACVIGQGVETPLMKEDSILAVRKYFORITLYLKEKYSPCAMEWYRAEIMRFSLSLTNLQESLRSE"

BASE COUNT 266 a 211 c 193 g 288 t

ORIGIN

DB 103; Score 496; Match 99.4%; QryMatch 57.1%; Pred. No. 0.00e+00;

Matches 499; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Db 130 ttgtgatctgcctcaaacccacagcctgggttagcaggagaccttgatgactcctggcacag 189
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QY 355 TGTGATCTGCTCAAAACCACAGCCCTGGGTAGCAGGAGACCTTGTGCTCTCGGCACAG 414
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Db 190 atgagaaatctctcttctctgcttgaagacacacatgactgcttgattcccccag 249
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Qy 415 ATGAGGAATCTCTCTTCTCTCTGCTTGAAGGACAGACTGCTTGGATTTCCCGAG 474
Db 250 gaggatttgcaacacagttccaaaggctgaaccatccctgtctccatgagatgac 309
Qy 475 GAGGATTTGGCAACACAGTTCCAAAAGGCTGAACCATCCCTGCTCCATGAGATGC 534
Db 310 cagcagatctcaatctcttcagcacaaggactcatctgctgctgggatgagaccctc 369
Qy 535 CAGCAGATCTTCAATCTCTTCAGCAAAAGGACTCATCTGCTGCTTGGATGAGACCTC 594
Db 370 ctagacaaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 429
Qy 595 CTAGACAAATTCTACACTGAATCTTACCACAGCTGAATGACCTGGAAGCCTGTGTGATA 654
Db 430 cagggggtgggggtgacagagactccctgtgatgaaggaggaactccattctggctgtgagg 489
Qy 655 CAGGGGGTGGGGGTGACAGAGACTCCCTGTATGAAGGAGGACTCCATTTCTGGGCTGTGAGG 714
Db 490 aaatacttccaaagaatcactctctatctgaagagaagaatacagccctgtgctgg 549
Qy 715 AAATACTTCCAAAGAAATCACTCTATCTGAAGAGAGAAATACAGCCCTTGTGCTGG 774
Db 550 gaggtgtcagagcagaatcatgatgattctttctgttcaacaacttgaagaagt 609
Qy 775 GAGGTGTGAGAGAGAAATCATGAGATCTTTTCTTTGTCACCAAACTTGCAAGAAAGT 834
Db 610 ttaagaagtaaggaatgaaac 631
Qy 835 TTAAGAAGTAAGGAATGATAAC 856

RESULT 11
LOCUS A15345 941 bp DNA PAT 27-JAN-1994
DEFINITION Bam H1 human interferon-alpha gene fragment.
ACCESSION A15345

KEYWORDS
SOURCE unidentified.
ORGANISM unidentified
unclassified.
REFERENCE 1 (bases 1 to 941)
AUTHORS Kingeman,A.J. and Kingeman,S.M.
TITLE Expression vectors
JOURNAL Patent: EP 0073635-A 10 09-MAR-1983;
CELLTECH LIMITED

COMMENT NCBI gi: 491898
FEATURES Location/Qualifiers
source 1..941
/organism="Artificial sequences"
/gene="modified BamH1 human interferon-alpha gene fragment"
/note="NCBI gi: 491899"
/codon start=1
/translation="MGCKSSCSVCGDLPQTHSLGSRRTLMLLAQWRKISLFSCLKDRH
DFGPQEEFGNFOKAETIPVJHEWIIQIFNLSTKSSAAWDETLLDKFYELLYQOL
NDLFAVIGQGVETPTLMKEDSLAVRKYFORITLYIKKKYSPCAWEVRAEIMRS
FSLSTNLQESLRKE"

BASE COUNT 315 a 184 c 179 g 263 t

DB 92; Score 496; Match 99.4%; QryMatch 57.1%; Pred. No. 0.00e+00;

Matches 499; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Db 37 tctgatctgctcaaacccacagcctggtagcaggagacacatgactgctcctggcacag 96
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Qy 355 TGTGATCTGCTCAAAACCCAGCCCTGGGTAGCAGGAGGACTTGTATGCTCTCTGGCAG 414
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Db 97 atcaggaataatctctcttctctgcttgaagacacacatgacttttggatttcccccag 156
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Qy 415 ATGAGGAATCTCTCTTCTCTCTGCTTGAAGGACAGACTGACTTTGGATTTCCCGAG 474
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Db 157 gaggagttggcaaccaggttccaaaagggtgaaaccatccctgtcctccatgagatgac 216
|||||

Qy 475 GAGGATTTGGCAACACAGTTCCAAAAGGCTGAACCATCCCTGCTCCATGAGATGC 534
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Db 217 cagcagatcttcaatctcttcagcacaaggactcatctgcttgggatgagaccctc 276
|||||

Qy 535 CAGCAGATCTTCAATCTTTCAGCAAAAGGACTCATCTGCTTGGATGAGACCTC 594
|||||

Db 277 ctagacaaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 336
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Qy 595 CTAGACAAATTCTACACTGAATCTTACAGCAGCTGAATGACCTTGAAGCCTGTGTGATA 654
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Db 337 cagggggtgggggtgacagagactccctgtgatgaaggaggaactccattctggctgtgagg 396
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Qy 655 CAGGGGTGGGGGTGACAGAGACTCCCTGTATGAAGGAGGACTCCATTTCTGGCTGTGAGG 714
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Db 397 aaatacttccaaagaatcactctctatctgaagagaagaatacagcccttggctgg 456
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Qy 715 AAATACTTCCAAAGAAATCACTCTATCTGAAGAGAGAAATACAGCCCTTGTGCTGG 774
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Db 457 gaggtgtcagagcagaatcatgatcttttcttcttcaacaacttgaagaagt 516
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Qy 775 GAGGTGTGAGAGAGAAATCATGAGATCTTTTCTTTGTCACCAAACTTGCAAGAAAGT 834
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Db 517 ttaagaagtaaggaatgaaac 538
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Qy 835 TTAAGAAGTAAGGAATGATAAC 856

RESULT 12
LOCUS 101766 958 bp ss-DNA PAT 05-MAR-1993
DEFINITION Sequence 1 from patent US 4801685.
ACCESSION 101766
KEYWORDS
SOURCE Unknown.
ORGANISM Unknown.

REFERENCE 1 (bases 1 to 958)

AUTHORS Goeddel,D.V. and Pestka,S.

TITLE Microbial production of mature human leukocyte interferon K and L

JOURNAL Patent: US 4801685-A 1 31-JAN-1989;

Hoffmann-La Roche Inc.;

Nutley, NJ;

COMMENT NCBI gi: 269810

FEATURES Location/Qualifiers

source 1..958

BASE COUNT 266 a 211 c 193 g 288 t

ORIGIN /organism="unknown"

DB 93; Score 496; Match 99.4%; QryMatch 57.1%; Pred. No. 0.00e+00;

Matches 499; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Db	130	tgtgatctgcctcaaacccagacctgggtacgaggaggacctgatgtcctctggcacag	189
Qy	355	TGTGATCTGCCTCAAAACCACAGACCTGGGTACGAGGAGGACCTTGATCTCTCGGCACAG	414
Db	190	atgaggaaatctctcttctcctgtctgtaagacagacatgactttgatttccccag	249
Qy	415	ATGAGGAGATCTCTCTTTCTCTCGTTGAAGACAGACGTGACTTTGGATTTCCCGAG	474
Db	250	gaggagttagcaaccagttccaaaaggctgaaccatccctgtcctccatgatgatc	309
Qy	475	GAGAGCTTGGCAACAGATTCCAAAAGGCTGAACACCATCCTGTCTCCATGAGATGATC	534
Db	310	cacgagatcttcaatctcttcagcacaaaggactcatctgctgttggatgagacctc	369
Qy	535	CACGAGATCTTCAATCTCTTCAGACAAAGGACTCATCTGCTGCTTGGGATGAGACCTC	594
Db	370	ctagacaattctacactgaactctaccagacgtgaatgaactggagacctccattcgtgtgata	429
Qy	595	CTAGACAAATTTACACTGAACCTTACGACGAGCTGAATCAGCTTGGAAAGCTGTCTGATA	654
Db	430	cagggggtgggggtgacagagaactccctgatgaaggaggactccattcgtgtgagg	489
Qy	655	CAGGGGTGGGGGTGACAGAGCTCCCTCTGATGAAGAGGACTCCATTCTGGCTGTGAGG	714
Db	490	aaatctctccaaaagaatcactctctatctgaagagagaagaatacacgcccttgcctgg	549
Qy	715	AAATCTTCCAAAGAAATCACTCTCTATCTGAAGAGAGAAATACAGCCTTTGTGCTGG	774
Db	550	gaggttgcagacagaaatcatgagatctttttctttgtcaacaaacttgcagaagt	609
Qy	775	GAGGTTGTCAAGCAGAAATCATGAGATCTTTTCTTTCTTCTCAACAAACTTGCACAAAGT	834
Db	610	ttaagaadtgaaggaatgaaac	631
Qy	835	TTAAGAACTAAGGAATGATAC	856

[illegible]

Db	97	atgaggaaatctctcttttctcgttgaagacagacatgactttgatttccocag	156
Qy	415	ATGAGGAGAACTCTCTTTTCTCTCTTGAAGCACAGCGTGACTTTGGATTTCCGAG	474
Db	157	gaggagtttggcaaccaggtccaaaaggctgaaccatccctgtcctccatgagatgac	216
Qy	475	GAGGAGTTTGGCAACCACTTCCAAAAGGCTGAACACATCCCTGTCTCTCATGACATGC	534
Db	217	cagcagatcttcaatctctcagcacaaaggactcatctgctgttggatgagacccctc	276
Qy	535	CAGCAGATTTCAATCTCTTACGCACAAGAGACTCATCTGCTGCTTGGGATGACACCCCT	594
Db	277	ctagacaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata	336
Qy	595	CTAGACAAATTTACACTGAACTCTACACGACGCTGAATGACCTTGAGACCTGTGTGATA	654
Db	337	cagggggtgggggtgacagagactccctgatgaggaggactccattctggtgtgagg	396
Qy	655	CAGGGGTTGGGGGTGACAGAGACTCCCGCTGATGAGAGGAGACTCCATTCCTGGCTGTGTGG	714
Db	397	aaatacttccaaaagaatcactctctatctgaagagagaagaatacacagcccttgtgctgg	456
Qy	715	AAATACTTCCAAAAGATCACTCTTATCTGAAAGAGAGAATAACAGCCCTTGTGCGCTGG	774
Db	457	gaggttgtcagacagagaataatcatgagatctttttcttgtcaacaacttgcagaagaagt	516
Qy	775	GAGGTTGTGACAGCAGAAAATCATGACTCTTTTCTTTGTTCACAAACTTTCGAGAAGAT	834
Db	517	ttaagaagtgaagatgaaac	538
Qy	835	TTAAGAAGTGAAGGAATGATAAC	856

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RESULT 14
LOCUS HUMINTAZ 961 bp mRNA PRI 06-JAN-1995
DEFINITION Human interferon-alpha mRNA, complete cds.
ACCESSION M54886 M38682
KEYWORDS interferon-alpha.
SOURCE Human leukocyte, cDNA to mRNA.
ORGANISM Homo sapiens
Eukaryota; Animalia; Chordata; Vertebrata; Mammalia; Theria;
Eutheria; Primates; Haplorhini; Catarrhini; Hominoidea.
1 (bases 1 to 961)
AUTHORS Oliver,G., Balbas,P., Valle,F., Soberon,X. and Bolivar,F.
TITLE [Cloning of human leukocyte interferon cDNA and a strategy for its
production in E. coli]
JOURNAL Rev. Latinoam. Microbiol. 27 (2), 141-150 (1985)
MEDLINE 86069501
COMMENT NCBI gi: 186498
FEATURES
Location/Qualifiers
1..961
/organism="Homo sapiens"
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Matches 499; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

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Qy 355 TGTGATCTGCTCAAAACCCACAGCCTGGGTAGCAGGAGACCTTGAATGCTCTGGCACAG 414

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Qy 475 GAGGAGTTTGGCAACACAGTTCCAAAAGGCTGAACCATCCCTGCTCTCCATGAGATGATC 534

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Qy 535 CAGCAGATCTCAATCTCTTCAGCAACAAGGACTATCTGCTCTTGGGATGAGACCCCTC 594

Db 370 ctagaaaaattctaacatgaactctaccagcagctgaatgaacctggaagcctgtgtgata 429

Qy 595 CTAGACAAATTTACACTGAACCTTACCAGCAGCTGAATGACCTGGAAGCCTGTGTGATA 654

Db 430 cagggggtgggggtgacagagactccctctgatgaaggaggaactccattctggctgtgagg 489

Qy 655 CAGGGGTGGGGGTGACAGAGACTCCCTGATGAAGGAGGACTCCATTCTGGCTGTGAGG 714

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RESULT 15

LOCUS I04160 958 bp ss-DNA PAT 05-MAR-1993

DEFINITION Sequence 1 from patent US 4678751.

ACCESSION I04160

KEYWORDS .

SOURCE Unknown.

ORGANISM Unknown.

REFERENCE 1 (bases 1 to 958)

AUTHORS Goeddel,D.V.

TITLE Hybrid human leukocyte interferons

JOURNAL Patent: US 4678751-A 1 07-JUL-1987;

Genentech, Inc.;

San Francisco, CA;

COMMENT NCBI gi: 268726

FEATURES Location/Qualifiers

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Qy 655 CAGGGGTGGGGGTGACAGAGACTCCCTGATGAAGGAGGACTCCATTCTGGCTGTGAGG 714

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Db 610 ttaagaagtaaggaatgaaac 631

Qy 835 TTAAGAAGTAAGGAATGATAAC 856

Search completed: Tue Aug 29 19:00:49 1995

Job time : 659 secs.

WATERBURY (TM)

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MPsrch_nm n.a. - n.a. database search, using Smith-Waterman algorithm

Run on: Tue Aug 29 18:40:42 1995; MasPar time 378.15 Seconds
963.701 Million cell updates/sec

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N.A. Sequence: 1 TGTGATCTGCTCAACCCA.....AAAGTTTAAAGAGTAAGGAA 495
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Gap 6

Nmatch STD : Dbase 0; Query 0

Searched: 493065 seqs, 368106350 bases x 2

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- 2 EST1
- 3 EST2
- 4 EST3
- 5 EST4
- 6 EST5
- 7 FUN
- 8 INV1
- 9 INV2
- 10 MAM
- 11 ORG
- 12 PLN
- 13 PRI
- 14 PRO
- 15 ROD
- 16 STS
- 17 SYN
- 18 UNC
- 19 VRT
- 20 VIR

Database: EST

- 21 EST1
- 22 EST2
- 23 EST3
- 24 EST4
- 25 EST5

- 26 EST6
- 27 EST7
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Database: genbank89

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- 81 BCT3
- 82 BCT4
- 83 BCT5
- 84 BCT6
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88 INV4
89 INV5
90 MAM1
91 MAM2
92 PAT1
93 PAT2
94 PHG
95 PIN1
96 PIN2
97 PIN3
98 PIN4
99 PIN5
100 PIN6
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105 PRI4
106 PRI5
107 PRI6
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113 ROD3
114 ROD4
115 ROD5
116 ROD6
117 ROD7
118 STR
119 STS1
120 STS2
121 STS3
122 STS4
123 SYN
124 UNA
125 VRL1
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129 VRL5
130 VRL6
131 VRT1
132 VRT2
133 VRT3

Database: genbank-new6

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139 EST5
140 EST6
141 EST7
142 EST8
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147 PRI
148 ROD
149 STS

150 STR
151 SYN
152 UNA
153 VRL
154 VRT

Database: u-emb143_89
155 ALL

Statistics: Mean 10.619; Variance 2.870; scale 3.700

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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2	495	100.0	501	93	I01977	Sequence 2 from paten	0.00e+00
3	493	99.6	742	103	HSIFR6	Human messenger RNA f	0.00e+00
4	493	99.6	1107	93	I04187	Sequence 8 from paten	0.00e+00
5	493	99.6	1733	107	HUMIFNAA	Human leukocyte inter	0.00e+00
6	493	99.6	589	107	HUMIFNAA2A	Human alpha 2 interfe	0.00e+00
7	493	99.6	589	92	A04970	Artificial sequence f	0.00e+00
8	493	99.6	784	92	AI2093	oligonucleotide displ	0.00e+00
9	493	99.6	1107	93	I01595	Sequence 1 from paten	0.00e+00
10	493	99.6	495	92	A04974	Artificial sequence f	0.00e+00
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12	491	99.2	961	108	HUMINTAZ	Human interferon-alph	0.00e+00
13	491	99.2	941	92	AI5345	Bam H1 human interfe	0.00e+00
14	491	99.2	958	93	I04160	Sequence 1 from paten	0.00e+00
15	491	99.2	958	93	I01766	Sequence 1 from paten	0.00e+00
16	491	99.2	573	102	ARHIFNAG	Synthetic DNA for Hu-	0.00e+00
17	491	99.2	506	93	I00069	Sequence 1 from paten	0.00e+00
18	491	99.2	941	93	I03096	Sequence 8 from paten	0.00e+00
19	491	99.2	958	103	HSIFR7	Messenger RNA for hum	0.00e+00
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21	481	97.2	1107	93	I07821	Sequence 3 from paten	0.00e+00
22	473	95.6	498	93	I01498	Sequence 1 from paten	0.00e+00
23	469	94.7	490	93	I01473	Sequence 2 from paten	0.00e+00
24	419	84.6	489	93	I07887	Sequence 3 from paten	0.00e+00
25	389	78.6	759	93	I08304	Sequence 3 from paten	0.00e+00
26	389	78.6	1544	103	HSIFNA6	Human interferon alph	0.00e+00
27	389	78.6	838	93	I08303	Sequence 1 from paten	0.00e+00
28	388	78.4	985	93	I04164	Sequence 3 from paten	0.00e+00
29	388	78.4	985	93	I03522	Sequence 2 from paten	0.00e+00
30	388	78.4	985	93	I01768	Sequence 3 from paten	0.00e+00
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32	388	78.4	985	107	HUMIFNAH	Human leukocyte inter	0.00e+00
33	387	78.2	504	92	A03749	Synthetic gene for in	0.00e+00
34	387	78.2	504	93	I01985	Sequence 7 from paten	0.00e+00
35	386	78.0	1126	103	HSIFNA14	Human interferon alph	0.00e+00
36	386	78.0	1626	103	HSIFD3	Human gene for leukoc	0.00e+00
37	386	78.0	1626	107	HUMIFNAH2	Human leukocyte inter	0.00e+00
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39	386	78.0	1089	93	I04188	Sequence 9 from paten	0.00e+00
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DEFINITION Synthetic gene for interferon alpha-2(Arg) .
ACCESSION A03742
KEYWORDS .
SOURCE unidentified.
ORGANISM unidentified
unclassified.
REFERENCE 1 (bases 1 to 501)
AUTHORS Hauptmann,R., Swetly,P., Meindl,P., Guenther,A., Falkner,E.,
Bodo,G. and Maurer-Fogy,I.
TITLE Hybrid Interferons, their use as medicaments and as intermediates
in the preparation of antibodies, their use and process for their
preparation
JOURNAL Patent: EP 0236920-A 2 16-SEP-1987;
BOEHRINGER INGELHEIM INTERNATIONAL GmbH
COMMENT NCBI gi: 490340
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Db 244 ctagacaaattctacactgaactctaccagcagctgaatgacctggaacctgtgtgata 303
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RESULT 2
LOCUS 101977 501 bp ss-DNA PAT 05-MAR-1993
DEFINITION Sequence 2 from patent US 4917887.
ACCESSION 101977
KEYWORDS .
SOURCE Unknown.
ORGANISM Unclassified.
REFERENCE 1 (bases 1 to 501)
AUTHORS Hauptmann,R., Swetly,P., Meindl,P., Adolf,G., Falkner,E., Bodo,G.
and Maurer-Fogy,I.
TITLE Hybrid Interferons, their use as pharmaceutical compositions and as
intermediate products for the preparation of antibodies and the use
thereof and processes for preparing them
JOURNAL Patent: US 4917887-A 2 17-APR-1990;
Boehringer Ingelheim International GmbH;
DE;
COMMENT NCBI gi: 271078
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source Location/Qualifiers
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RESULT 3
LOCUS HSI6R6 742 bp RNA PRI 03-APR-1995
DEFINITION Human messenger RNA for leukocyte (alpha-2) interferon.
ACCESSION V00548
KEYWORDS complementary DNA; interferon; signal peptide.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Animalia; Metazoa; Chordata; Vertebrata; Mammalia;
Theria; Eutheria; Primates; Haplorhini; Catarrhini; Hominidae.
REFERENCE 1 (bases 1 to 742)
AUTHORS Streuli,M., Nagata,S. and Weissmann,C.
TITLE At least three human type alpha interferons: structure of alpha 2
JOURNAL Science 209 (4463), 1343-1347 (1980)
MEDLINE 81015442
COMMENT NCBI gi: 32740
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Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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RESULT 4
LOCUS I04187 1107 bp ss-DNA PAT 05-MAR-1993
DEFINITION Sequence 8 from patent US 4678751.
ACCESSION I04187
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
REFERENCE 1 (bases 1 to 1107)
AUTHORS Goeddel,D.V.
TITLE Hybrid human leukocyte interferons
JOURNAL Patent: US 4678751-A 8 07-JUL-1987;
Genentech, Inc.;
San Francisco, CA;

COMMENT NCBI gi: 268733
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source Location/Qualifiers
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Db 480 cagggggtgggggtgacagagaactccccctgatgaaggaggactccattctggctgtgagq 539
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Qy 301 CAGGGGGTGGGGGTGACAGACACTGCCCTCGATGAAGGAGGACTCCATCTGGCTGTGAGG 360
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Db 540 aaatacttccaagaatacactctctatctgaagagaagaataacagcccttgtgcctgg 599
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Qy 361 AAATACTTCCAAGAAATCACTCTATCTCAAGACAGAAGAAATACAGCCCTTGTGCCTGG 420
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Db 600 gaggtgtcagagcagaagaatcatgagacttttcttctgtcacaacaactgtcagaagaagt 659
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Qy 421 GAGGTGTCAGAGCAGAAATCATGAGACTCTTTTCTTGTCAACAACACTTGCAAGAAAGT 480
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Db 660 ttaagaagtaaggaa 674
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Qy 481 TTAAGAGACTAAGGAA 495
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RESULT 5 HUMIFNAA 1733 bp DNA PRI 15-NOV-1994
LOCUS Human leukocyte interferon (leif) alpha-a gene.
DEFINITION J00207 V00544
ACCESSION
KEYWORDS alpha-interferon; interferon.
SOURCE Human cell-line Kg-1, cDNA to mRNA and clone Hif-SN206; DNA from human genomic library of Lawn et al; cDNA to lymphocyte mRNA, clone 202 (see comment).

ORGANISM Homo sapiens
Eukaryota; Chordata; Vertebrata; Mammalia; Theria;
Eutheria; Primates; Haplorhini; Catarrhini; Hominidae.
REFERENCE 1 (bases 451 to 1410)
AUTHORS Goeddel,D.V., Yelverton,E., Ullrich,A., Heyneker,H.L., Miozzari,G.,
Holmes,M., Seeburg,P.H., Dull,T.J., May,L., Stebbing,N., Crear,R.,
Maeda,S., McCandliis,R., Sloma,A., Tabor,J.M., Grosse,M.,
Familletti,P.C. and Pestka,S.
TITLE Human leukocyte interferon produced by E. coli is biologically
active
JOURNAL Nature 287 (5781), 411-416 (1980)
MEDLINE 81052322
REFERENCE 2 (bases 659 to 1283)
AUTHORS Maeda,S., McCandliis,R., Grosse,M., Sloma,A., Familletti,P.C.,
Tabor,J.M., Evinger,M., Levy,W.P. and Pestka,S.
TITLE Construction and identification of bacterial plasmids containing
nucleotide sequence for human leukocyte interferon
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 77 (12), 7010-7013 (1980)
MEDLINE 81175079
REFERENCE 3 (bases 529 to 1271)
AUTHORS Streuli,M., Nagata,S. and Weissmann,C.
TITLE At least three human type alpha interferons: structure of alpha 2
JOURNAL Science 209 (4463), 1343-1347 (1980)
MEDLINE 81015442
REFERENCE 4 (bases 451 to 1408)
AUTHORS Goeddel,D.V., Leung,D.W., Dull,T.J., Grosse,M., Lawn,R.M.,
McCandliis,R., Seeburg,P.H., Ullrich,A., Yelverton,E. and Gray,P.W.
TITLE The structure of eight distinct cloned human leukocyte interferon
cDNAs
JOURNAL Nature 290 (5801), 20-26 (1981)
MEDLINE 81148795
REFERENCE 5 (bases 1 to 1733)
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AUTHORS Lawn,R.M., Grosse,M., Houck,C.M., Franke,A.E., Gray,P.V. and
Goeddel,D.V.
TITLE DNA sequence of a major human leukocyte interferon gene
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 78 (9), 5435-5439 (1981)
MEDLINE 82060261
REFERENCE 6 (bases 931 to 994)
AUTHORS Bowden,D.W., Mao,J., Gill,T., Hsiao,K., Lillquist,J.S., Testa,D.
and Vovig,G.F.
TITLE Cloning of eukaryotic genes in single-strand phage vectors: the
human interferon genes
JOURNAL Gene 27 (1), 87-99 (1984)
MEDLINE 84183614
COMMENT IFN-alpha-a is one of at least 13 human leukocyte interferon
homologous but distinct proteins, some of which may be pseudogenes.
IFN-alpha-a codes for a protein having a signal peptide of 23 amino
acids and a mature peptide of 165 amino acids, leading to a
calculated Mw of 19,390. The sequences denoted alpha-a (1),[4])
are considered to be from the same gene which encodes sequences
denoted alpha-2 (3),[5]). An interferon protein denoted
IFN-alpha-a, which has been sequenced, may not be coded for by this
sequence. See other entries for human interferons. Complete source
information:
Human cell-line Kg-1, cDNA to mRNA [1],[2],[4] and clone Hif-SN206
[3]; DNA from human genomic library of Lawn et al [5]; cDNA to
lymphocyte mRNA, clone 202 [6].

FEATURES
source NCBI gi: 184581
Location/Qualifiers
1..1733
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/sequenced_mol="DNA"
mRNA 443..1409
/gene="IFNA"
/map="9p22"
/note="alternative; G00-119-328"
443..1584
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/map="9p22"
/note="alternative; G00-119-328"
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/gene="IFNA"
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511..1077
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/product="interferon alpha-a"
/translation="MALFTALLVALLVLSCKSSCVGCDLPQTHSLGSRRTLLLAQM
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sig_peptide
CDS
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/note="G00-119-328"
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/map="9p22"
/citation=[4]
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/map="9p22"
/citation=[4]
BASE COUNT 567 a 302 c 328 g 536 t
ORIGIN Chromosome 9p22-p13; 317 bp upstream of PvuII site.

DB 107; Score 493; Match 99.8%; QryMatch 99.6%; Pred. No. 0.00e+00;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
Db 580 tgtgatctgctcaaacacacagctgggtagcaggaggaccttgatgctcctggcacag 639
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Qy 1 TGTGATCTGCTCAACCCACAGCTGGGTAGCAGGACGACCTTGATGCTCTGGCACAG 60
640 atgaggagaatctcttttctctgttgaggacagacatgactttggatttccccag 699
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Qy 61 ATCAGGAGAAATCTCTTTCTCTGCTTGAAGCAGCAGCTGACTTTGGATTTCCCCAG 120
700 gagagatttggcaacagcttccaaaaggctnaaacatccctgtcctccatgagatgac 759
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Qy 121 CAGGAGTTTGGCAACAGCTTCCAAAAGGCTGAACCATCCCTGTCTCCATGAGATGATC 180
760 cagcagatcttcaatctcttcagcaacaaggactcatctgctgctgggatgagaccttc 819
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Qy 181 CAGCAGATTTCAAATCTCTTCAGCAACAAGGACTCATCTGCTGCTTGGGATCAGACCCCTC 240
820 ctagacaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 879
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Qy 241 CTAGACAAATTTCACTGAATCTCTACCAAGCAGCTGAATGACCTTGGAGCCCTGTGTGATA 300
880 cagggggtgggggtgacagagactccccctgatgaaggaggactccattctggctgtgagg 939
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Qy 301 CAGGGGGTGGGGGTGACAGACACTCCCTTGATGAAGGAGGACTCCATCTTGGCTGTGAGG 360
940 aaatacttcaagaagaatcactctctatctgaagagaagaataacagcccttgtgctgg 999
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Qy 361 AAATACTTCCAAAATCACTCTCTATCTGAAGAGAGAAATACAGCCCTTGTGCTGAGG 420
1000 gaggtgtcagagcagaagaatcatgagatcttttctttgtcaacaacttgcagaagaagt 1059
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Qy 421 GAGGTTGTGACAGCAGAAATCATGAGATCTTTTCTTTTGTGCAAAACTTGCAGAAAGT 480

Db 1060 ttaagaagtaaggaa 1074
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Qy 481 TTAAGAAGTAAGGAA 495
RESULT 6 HUMIFNAZA 589 bp DNA PRI 08-NOV-1994
LOCUS Human alpha 2 interferon gene, 3' end.
DEFINITION M29883
ACCESSION
KEYWORDS alpha-interferon; interferon.
SOURCE Human DNA.
ORGANISM Homo sapiens
Eukaryota; Animalia; Chordata; Vertebrata; Mammalia; Theria;
Eutheria; Primates; Haplorhini; Catarrhini; Hominidae.
REFERENCE 1 (bases 1 to 589)
AUTHORS Weber, H. and Weissmann, C.
TITLE Formation of genes coding for hybrid proteins by recombination
between related, cloned genes in E. coli
JOURNAL Nucleic Acids Res. 11 (16), 5661-5669 (1983)
MEDLINE 83299241
COMMENT NCBI gi: 184585
FEATURES
source 1..589
/organism="Homo sapiens"
CDS <1..498
/gene="IFNA"
/map="9p22"
/note="alpha 2 interferon; NCBI gi: 386795"
/codon_start=1
/gdb_xref="G00-119-328"
/translation="CDLPQTHSGSRRTLMLAQMERISLFSCLKDRHDFGFPQEEFG
NFOKAETIPVLHEMIQIENLFSTKSSAAWDETLLDKFVTELQQQLNDLEACVIOG
VGWETPLMKEDSILAVRKYFQRITLYLKEKYSPCAMEWVRAEIMRSFSLTNLQES
LAKSE"
BASE COUNT 165 a 135 c 135 g 154 t
ORIGIN
DB 107; Score 493; Match 99.8%; QryMatch 99.6%; Pred. No. 0.00e+00;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
Db 1 tgtgatctgctcaaacacacagctgggtagcaggaggaccttgatgctcctggcacag 60
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Qy 1 TGTGATCTGCTCAACCCACAGCTGGGTAGCAGGACGACCTTGATGCTCTGGCACAG 60
61 atgaggagaatctcttttctctgttgaggacagacatgactttggatttccccag 120
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Qy 61 ATCAGGAGAAATCTCTTTCTCTGCTTGAAGCAGCAGCTGACTTTGGATTTCCCCAG 120
121 gaggagatttggcaacagcttccaaaaggctgaacacatccctgtcctccatgagatgac 180
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Qy 121 CAGCAGATTTGCAACAGCTTCCAAAAGGCTGAACCATCCCTGTCTCCATGAGATGATC 180
181 cagcagatcttcaatctcttcagcaacaaggactcatctgctgctgggatgagaccttc 240
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Qy 181 CAGCAGATTTCAAATCTCTTCAGCAACAAGGACTCATCTGCTGCTTGGGATGAGACCCCTC 240
241 ctagacaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 300
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Qy 241 CTAGACAAATTTCACTGAATCTCTACCAAGCAGCTGAATGACCTTGGAGCCCTGTGTGATA 300
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Qy 301 CAGGGGGTGGGGGTGACAGACACTCCCTTGATGAAGGAGGACTCCATCTTGGCTGTGAGG 360

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Qy 361 AATACTTCCAAGAATCACTCTCTATCTGAAGAGAGAATAACAGCCCTTGTGCTGG 420
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Db 421 gaggtgtcagagcagaatacatgagatcttttttcttcaacaacttgcaagaagt 480
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Qy 421 GAGGTTGTACAGACAGAATCATGAGATCTTTTCTTCTCAACAACATTCGAAGAACT 480
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Db 481 ttaagaagtaaggaa 495
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Qy 481 TTAAGAAGTAAGGAA 495
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RESULT 7
LOCUS A04970 589 bp DNA PAT 13-JUL-1993
DEFINITION Artificial sequence for interferon-alpha 2.
ACCESSION A04970
KEYWORDS interferon alpha II.
SOURCE unidentified.
ORGANISM unidentified.
REFERENCE 1 (bases 1 to 589)
AUTHORS Weissmann,C. and Weber,H.
TITLE Methods of producing hybrid DNA sequences and hybrid polypeptides
and DNA sequences produced by them
JOURNAL Patent: EP 0141484-A 2 15-MAY-1985;
Biogen, Inc.; BIOGEN, INC
COMMENT NCBI gi: 412536
FEATURES Location/Qualifiers
source 1..589
/organism="Artificial sequences"
<1..498
/note="NCBI gi: 412537"
/codon_start=1
/product="interferon alpha 2"
/translation="CDLPQTHSLGSRRTMLIAQMRRISLPSCLKDRHDFGPQEEFG
NQFQKAETIPVLHEMIQOIFENLFTKDSAAWDETLLDKFYTELYQQINDLEACVTQ
GVGTEPLMKEDSILAVRKYFORITLYLKEKYSPCMEVRAEIMRFSLSLNQES
IRSK"
BASE COUNT 165 a 135 c 135 g 154 t
ORIGIN

DB 92; Score 493; Match 99.8%; QryMatch 99.6%; Pred. No. 0.00e+00;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 1 tgtgatctgcctcaaacacagcgtggtagcaggagaccttgatgctcctggcacag 60
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Db 61 ataggagaatctcttttctctgttgtagagacagacatgatttccccag 120
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Qy 61 ATGAGGAGATCTCTTTTCTCTGCTTGAAGACAGACGCTTGATTTCCCCAG 120
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Db 121 gagagtttggaacacagttccaaaaggctgaacacatccctgtcctccatgagatgac 180
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Qy 121 GAGGAGTTTGCAACCAAGTTCACAAAAGGCTGAACACCATCCCTGTCTCCATGATGATC 180
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Db 181 cagcagatcttcaatctctcagacacaaggactcatctgtgcttgggagagaccctc 240
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Qy 181 CACGAGATTTCAA TCTCTTCAGCAAAAGGACTCATCTGCTGTGGATCGAGACCTC 240
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Db 241 ctagacaaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 300
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Db 301 caggggtgggggtgacagagactccctctgatgaagagagactccattctgctgtgag 360
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Db 361 aaatacttcaagaatacactctctatctgaagagaagaataacagcccttgctgg 420
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Qy 361 AATACTTCCAAGAATCACTCTCTATCTGAAGAGAGAATAACAGCCCTTGTGCTGG 420
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Db 421 gaggtgtcagagcagaatacatgagatcttttttcttcaacaacttgcaagaagt 480
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Db 481 ttaagaagtaaggaa 495
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Qy 481 TTAAGAAGTAAGGAA 495
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RESULT 8
LOCUS A12093 784 bp DNA PAT 06-DEC-1993
DEFINITION oligonucleotide displaying a biological or immunological activity
of human interferon.
ACCESSION A12093
KEYWORDS unidentified.
SOURCE unidentified.
ORGANISM unclassified.
REFERENCE 1 (bases 1 to 784)
AUTHORS Weissmann,C.
TITLE DNA sequences, recombinant DNA molecules and processes for
producing human interferon-alpha like polypeptides
JOURNAL Patent: EP 0032134-A 15 15-JUL-1981;
Biogen N.V
COMMENT NCBI gi: 491271
FEATURES Location/Qualifiers
source 1..784
/organism="Artificial sequences"
<1..563
/note="NCBI gi: 833176"
/codon_start=2
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interferon"
BASE COUNT 202 a 199 c 181 g 202 t
ORIGIN

DB 92; Score 493; Match 99.8%; QryMatch 99.6%; Pred. No. 0.00e+00;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 65 tgtgatctgcctcaaacacagcgtggtagcaggagaccttgatgctcctggcacag 124
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Db 125 atgagagaatctctcttctctgctgttgagacagacatgatttggattccccag 184
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Qy 61 ATGAGGAGATCTCTTTTCTCTGCTTGAAGACAGACGCTTGATTTCCCCAG 120
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Db 185 gagagatttggcaaccagttccaaaaggctgaacacatccctgtcctccatgagatgac 244
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Db 305 ctagacaaattctacactgaactctaccagcagctgaatgacctggaacctgtgtgata 364
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Qy 241 CTAGCAAAATTTACACTGAATCTCTACACGAGCTGAATGACCTGGAGCCTGTGTGATA 300
Db 365 cagggggtgggggtgacagagactccctgatgaaggagactccattctgctgtgagg 424
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Qy 301 CAGGGGGTGGGGGTGACAGACACTCCCTCTGATGAAGGAGGACTCCATTCTGCGCTGCAGG 360
Db 475 aaatactccaagaatacactctctatctgaagagaagaatacagcccttgctgtg 484
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Qy 421 GAGGTTGTCAGACGAGAAATCATGAGATCTTTTCTTCTCAACAACCTTGCAAGAACT 480
Db 545 ttaagaagtaaggaa 559
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Qy 481 TTAAGAGTAAGGAA 495

RESULT 9
LOCUS I01595 1107 bp ss-DNA PAT 05-MAR-1993
DEFINITION Sequence 1 from patent US 4810645.
ACCESSION I01595
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
REFERENCE 1 (bases 1 to 1107)
AUTHORS Goeddel,P.V. and Pestka,S.
TITLE Microbial production of mature human leukocyte interferon K and L
JOURNAL Patent: US 4810645-A 1 07-MAR-1989;
Hoffmann-La Roche Inc.;
Nutley, NJ;

COMMENT NCBI gi: 269892
FEATURES Location/Qualifiers
source 1..1107
/organism="unknown"
BASE COUNT 305 a 232 c 223 g 347 t
ORIGIN

Db 93; Score 493; Match 99.8%; OryMatch 99.6%; Pred. No. 0.00e+00;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
Db 180 tggatctgcctcaaacccacagctgggttagcaggagacattgatctctggacag 239
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Qy 1 TGTGATCTGCTTCAAAACCACAGCGCTGGGTAGCAGGAGGACCTTGTGCTGCGCACAG 60
Db 240 atgaggagaatctcttttctctgcttgaaggacagacatgactttggatttccccag 299
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Qy 61 ATGAGGAGATCTCTCTTTCTCTGTTGAAGGACAGACGCTGACTTTGGATTTCCCCAG 120
Db 300 gagaggttggcaaccagttccaaggctgaaaccatccctgtctccatgagatgac 359
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Qy 121 GAGGAGTTGGGCAACAGTTCCAAAGGGCTGAACCATCCCTGCTCTCCATCAGATGATC 180
Db 360 cagcagatcttcaatctcttcagcaaaaggactcatctgctgcttggatgagaccctc 419
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Qy 181 CAGCAGATCTTCAATCTCTTCAGCAAAAGGACTCATCTGCTTGGGATCAGACCCCTC 240
Db 420 ctagacaaattctacactgaactctaccagcagctgaatgacctggaacctgtgtgata 479
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Qy 241 CTAGCAAAATTTACACTGAATCTCTACACGAGCTGAATGACCTGGAGCCTGTGTGATA 300
Db 480 cagggggtgggggtgacagagactccctgatgaaggagactccattctggtgtgagg 539
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Qy 301 CAGGGGGTGGGGGTGACAGACACTCCCTCTGATGAAGGAGGACTCCATTCTGCGCTGCAGG 360
Db 540 aaatactccaagaatacactctctatctgaagagaagaatacagcccttgctgtg 599
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Qy 361 AAATACTTCCAAAGAAATCACTCTCTATCTGAAGAGAGAAATACAGCCCTTGTGCTGG 420
Db 600 gaggtgtcagagcaagaatacatgagatcttttttcttcaacaacattgcaagaagt 659
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Qy 421 GAGGTTGTCAGACGAGAAATCATGAGATCTTTTCTTCTCAACAACCTTGCAAGAACT 480
Db 660 ttaagaagtaaggaa 674
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Qy 481 TTAAGAGTAAGGAA 495

RESULT 10
LOCUS A04974 495 bp DNA PAT 13-JUL-1993
DEFINITION Artificial sequence for interferon-alpha 2.
ACCESSION A04974
KEYWORDS .
SOURCE unidentified.
ORGANISM unidentified.
REFERENCE 1 (bases 1 to 495)
AUTHORS Weissmann,C. and Weber,H.
TITLE Methods of producing hybrid DNA sequences and hybrid polypeptides
and DNA sequences produced by them
JOURNAL Patent: EP 0141484-A 6 15-MAY-1985;
Biogen, Inc.; BIOGEN, INC
COMMENT NCBI gi: 412540
FEATURES Location/Qualifiers
source 1..495
/organism="Artificial sequences"

BASE COUNT 140 a 116 c 120 g 119 t
ORIGIN
Db 92; Score 493; Match 99.8%; OryMatch 99.6%; Pred. No. 0.00e+00;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
Db 1 tggatctgcctcaaacccacagctgggttagcaggagacattgatctctggacag 60
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Qy 1 TGTGATCTGCTTCAAAACCACAGCGCTGGGTAGCAGGAGGACCTTGTGCTGCGCACAG 60
Db 61 atgaggagaatctcttttctctgcttgaaggacagacatgactttggatttccccag 120
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Qy 61 ATGAGGAGATCTCTCTTTCTCTGTTGAAGGACAGACGCTGACTTTGGATTTCCCCAG 120
Db 121 gagaggttggcaaccagttccaaggctgaaaccatccctgtctccatgagatgac 180
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Qy 121 GAGGAGTTGGCAACCACTTCCAAAGGGCTGAACCATCCCTGCTCTCCATCAGATGATC 180
Db 181 cagcagatcttcaatctcttcagcaaaaggactcatctgctgcttggatgagaccctc 240
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Qy 181 CAGCAGATCTTCAATCTCTTCAGCAAAAGGAGCTCATCTGCTGCTGGGATCAGACCCCTC 240
Db 241 ctagacaaattctacactgaactctaccagcagctgaatgacctggaacctgtgtgata 300

Qy 241 CTAGACAAATTCACACTCACTACACGAGCTGAATCACTGGAAGCCTGTGTGATA 300
 Db 301 cagggggtgggggtgacagagactccctgatgaaggaggactccattctggctgtgag 360
 Qy 301 CAGGGGGTGGGGGTGACAGAGACTCCCTGTATGAAGGAGGACTCCATTCTGGCTGTGAGG 360
 Db 361 aaatacttccaaagaatacactctctatctgaagaagaagaataacagccctgtgctgg 420
 Qy 361 AATACTTCCAAAGAAATCACTCTATCTGAAGAGAGAAATAACGCCCTGTGCGCTGG 420
 Db 421 gaggtgtcagagcaagaatacatgagactctttcttctgcaacaacttgcaagaagt 480
 Qy 421 CAGGTTGTGAGAGCAAGAAATCATGAGATCTTTCTTTCTTCAACAAACTTGCAAGAAAGT 480
 Db 481 ttaagaagtaaggaa 495
 Qy 481 TTAAGAAGTAAGGAA 495

RESULT 11
 LOCUS HSIFR2 961 bp RNA PRI 17-DEC-1994
 DEFINITION Messenger RNA for human leukocyte interferon.

ACCESSION V00544
 KEYWORDS complementary DNA; interferon.
 SOURCE human.

ORGANISM Homo sapiens
 Eukaryotes; mitochondrial eukaryotes; Metazoa/Eumycota group;
 Metazoa; Eumetazoa; Bilateria; Coelomata; Deuterostomia; Chordata;
 Vertebrata; Gnathostomata; Osteichthyes; Sarcopterygii; Choanata;
 Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Archonta; Primates;
 Catarrhini; Hominiidae; Homo.

REFERENCE 1 (bases 1 to 961)
 AUTHORS Goeddel,D.V., Yelverton,E., Ullrich,A., Heyneker,H.L., Miozzari,G.,
 Holmes,W., Seeburg,P.H., Dull,T.J., May,L., Stebbing,N., Crea,R.,
 Maeda,S., McCandless,R., Sloma,A., Tabor,J.M., Gross,M.,
 Familletti,P.C. and Pestka,S.
 TITLE Human leukocyte interferon produced by E. coli is biologically active

JOURNAL Nature 287 (5781), 411-416 (1980)
 MEDLINE 81052322
 REFERENCE 2 (bases 1 to 961)
 AUTHORS Maeda,S., McCandless,R., Gross,M., Sloma,A., Familletti,P.C.,
 Tabor,J.M., Evinger,M., Levy,W.P. and Pestka,S.
 TITLE Construction and identification of bacterial plasmids containing nucleotide sequence for human leukocyte interferon
 JOURNAL Proc. Natl. Acad. Sci. U.S.A. 77 (12), 7010-7013 (1980)
 MEDLINE 81175079
 COMMENT KST HSA.INTERFERONIA
 May not be distinct from <HSIFR1>.

NCBI gi: 32730
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 mRNA 1..961 /note="messenger RNA"
 CDS 61..627 /note="reading frame (interferon A); NCBI gi: 32731"
 /codon_start=1
 /translations="MALTFALLVALLVLKSKSCSVGCDLPQTHSLGSRRTMLLAQM
 RKISLFSCKDRHDFGTFQEFNGQFQKAEITPVLHEMIQIIFNLFSTKDSAAWDET
 LLKQFYTELQQLNDLEACVIQGVYETPLAKEDSILAVRYKFTITLYLKEKYSY
 CAPEVVRATHRFSLSLNQESILRSKE"

BASE COUNT 269 a 211 c 192 g 289 t
 ORIGIN

DB 103; Score 491; Match 99.5%; QryMatch 99.2%; Pred. No. 0.00e+00;
 Matches 493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Db 130 tgtatctgcctcaaaaccacagcctgggtagcaggaggagacattgatgctctctggcacag 189
 Qy 1 TGTGATCTGCCTCAAAACCACAGCCTGGGTAGCAGGAGGACCTTGATGCTCTCTGGCAG 60

Db 190 atgagaaatctctctttctcctgcttgaaggacagacatgactttggatttccccag 249
 Qy 61 ATGAGGAGAAATCTCTCTTTCTCTGCTTGAAGGACAGACGCTGGACTTTGGATTTCGCCAG 120

Db 250 gaggagtttggcaccagttccaaaaggctgaaccatccctgtctccatgagatgac 309
 Qy 121 GAGGAGTTTGGCAACAGTTCCAAAAGGCTGAACCATCCCTGCTCCATGAGATGATC 180

Db 310 cagcagatcttcaatctcttcagcacaaaggactcatctgcttgggatgagccctc 369
 Qy 181 CAGCAGATCTCAATCTCTTTCAGCACAAAGGACTCATCTCTCTGGATGACACCCCTC 240

Db 370 ctgacaaatctctacactgaactctaccagacgtgaatgaacctggaagcctgtgtata 429
 Qy 241 CTAGACAAATTCACACTCACTGAATCTACACGAGCTGAATGACCTGGAAGCCTGTGTGATA 300

Db 430 cagggggtgggggtgacagagactccctgatgaaggaggactccattctggctgtgag 489
 Qy 301 CAGGGGGTGGGGGTGACAGAGACTCCCTGTATGAAGGAGGACTCCATTCTGGCTGTGAGG 360

Db 490 aaatacttccaaagaatacactctctatctgaagaagaagaataacagccctgtgctgg 549
 Qy 361 AATACTTCCAAAGAAATCACTCTATCTGAAGAGAGAAATAACGCCCTTGTGCGCTGG 420

Db 550 gaggtgtcagagcaagaatacatgagactctttcttctgcaacaacttgcaagaagt 609
 Qy 421 CAGGTTGTGAGAGCAAGAAATCATGAGATCTTTCTTTCTTCAACAAACTTGCAAGAAAGT 480

Db 610 ttaagaagtaaggaa 624
 Qy 481 TTAAGAAGTAAGGAA 495

RESULT 12
 LOCUS HUMINF2 961 bp mRNA PRI 06-JAN-1995
 DEFINITION Human interferon-alpha mRNA, complete cds.

ACCESSION M54886 M38682
 KEYWORDS interferon-alpha.
 SOURCE Human leukocyte, cDNA to mRNA.

ORGANISM Homo sapiens
 Eukaryota; Animalia; Chordata; Vertebrata; Mammalia; Theria;
 Eutheria; Primates; Haplorhini; Catarrhini; Hominiidae.

REFERENCE 1 (bases 1 to 961)
 AUTHORS Oliver,G., Balbas,P., Valle,F., Soberon,X. and Bolivar,F.
 TITLE [Cloning of human leukocyte interferon cDNA and a strategy for its production in E. coli]

JOURNAL Rev. Latinoam. Microbiol. 27 (2), 141-150 (1985)
 MEDLINE 86069501
 COMMENT NCBI gi: 186498
 FEATURES Location/Qualifiers

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 /organism="Homo sapiens"
 /sequenced_mol="cDNA to mRNA"
 /tissue_type="bone marrow tumor"

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		/map="9p22"		
		/note="NCBI gi: 186499"		
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		/gdb xref="c00-119-328"		
		/product="interferon"		
		/translation="MAITFAIALVALIVLISCKSSVCGDLPQTHSLGSRRTLLLAQM RKTSLSCLKORHDFGPQEFGNQFKAETIPVLHEMIQQIIFNLSTKDSAAADMET LLDKFYTELYQLNDLEACVIQGCVGTETPLMKEDSILAVRKYFORITLYLKKKYSP CAMEWRAEIMRSFSLSTNIQSLSRSE"		
BASE COUNT	269 a	211 c	'192 g	289 t
ORIGIN				
DB 108;	Score	491;	Match 99.6%;	OryMatch 99.2%; Pred. No. 0.00e+00;
Matches	493;	Conservative	0;	Mismatches 2; Indels 0; Gaps 0;
Dbb	130	tgtgatctgcctcaaacaccagacctggtagcaggaggaacttgatgctcctggcacag	189	
Qyy	1	TGTGATCTGCCTCAAACCCACAGCCTGGTAGCAGGAGCCTTGATGCTCTCTGCCACAG	60	
Dbb	190	atgagaataattctcttttctctgcttgaagacagacatgactttgtgattccccag	249	
Qyy	61	ATGAGAATAATTCTCTTTTCTCTGCTTAGGACACAGACTGACTTTGGATTCCCCAG	120	
Dbb	250	gagagattggcaaccagcttcacaaaggctgaaccatccctgctcctcatgagatgac	309	
Qyy	121	GAGGAGTTTGGCAACCAGTTCCAAAAGGCTGAACCATCTCTCTCCATGAGATGATC	180	
Dbb	310	cagcagatcttcaatctcttcicagcacaaaagactcatctgcttgtgagtggagaccctc	369	
Qyy	181	CAGCAGATCTTCAAATCTTTTCAGACAAGGACTCATCTGCTGTGGGATGAGACCCCTC	240	
Dbb	370	ctagacaataattcaactgaactctaccagacgtgaatgacctggaagcctgtgtgata	429	
Qyy	241	CTAGACAAATTTCTACACTGAACCTACCACGAGCTGAATGACCTGCAAGCCTCTGTGATA	300	
Dbb	430	cagggggtgggggtgacagagactcccctgatggaaggaggactccaattcggctgtgagg	489	
Qyy	301	CAGGGGTTGGGGGTGACAGAGACTCCCTGATGAAGGAGGACTCCAATTCCTGGCTGTGAGG	360	
Dbb	490	aaatatcttccaagaatactctctatctgaaagagagaagaatacacgacctgtgctgg	549	
Qyy	361	AAMTACTTCCAAGAATACTCTCTATCTGTAAGACAGAGAAAAACAGACCCCTTGTGCTGG	420	
Dbb	550	gaggtgtcgagcagagaatactgagatcttttcttttcttgcacaacaacttgcagaagaat	609	
Qyy	421	GAGGTTGTGACAGACGAATACTGAGATCTTTTTCTTTGTCTCAACAACTTCCAGAAAGT	480	
Dbb	610	ttaagaadtgaagaa	624	
Qyy	481	TTAAGAGCTAAGGAA	495	

RESULT	13
LOCUS	A15345 941 bp DNA PAT
DEFINITION	Bam HI human interferon-alpha gene fragment.
ACCESSION	A15345
KEYWORDS	.
SOURCE	unidentified.
ORGANISM	unidentified
REFERENCE	unclassified.
AUTHORS	1 (bases 1 to 941)
	Kingsman,A.J. and Kingsman,S.M.

TITLE	Expression vectors
JOURNAL	Patent: EP 0073635-A 10 09-MAR-1983; CELLTECH LIMITED
COMMENT	NCBI gi: 491898
FEATURES	Location/Qualifiers 1..941 /organism="Artificial sequences" 7..534 /gene="modified BamHI human interferon-alpha gene fragment" /note="NCBI gi: 491899" /codon_start=1 /translation="MGCKSSGCVGCDLPQTHSLGSRRTLMLIAQMRKISLFSCIKORH DFGPEOEEGNQKQKAEITPVLHMLIQIENLSTKSSAAWDETLLDKFVTELYQOL NDLEAVTQGVGVTETPTIMKEDSLIAVRKIFQRTILYKERRKISPCAWEWVRAEIMRS FSLSTNLQESLRKSE"
BASE COUNT	315 a 184 c 179 g 263 t
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DB 92; Score	491; Match 99.6%; QryMatch 99.2%; Pred. No. 0.00e+00;
Matches 493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;	
Db	37 t g t g a t c t g c t c a a c c c a g c c t g g g t a g c a g g a g a c c t t g a t g c t c c t g g c a c a g 96
Qy	1 T G T G A T C T G C T C A A C C C A C G C C T G G G T A G C A G G A G C C T T G A T G C T C C T G G C A C A G 60
Db	97 a t g a g a a a t c t c t t t t c t c t g t t a g a g a c a g a c a t g a c t t g g a t t c c c c a g 156
Qy	61 A T G A G G A A A T C T C T C T T T C T C T G T T G A G G A C A G A C T G A C T T T G A T T C C C A G 120
Db	157 g a g g a g t t t g c a c c a g t t c c a a a g g c t g a a c c a t c c c t g t c c t c c a t g a g a t g a t c 216
Qy	121 G A G G A G T T T G G C A A C A G A T T C C A A A A G G C T G A A A C A T C C C T G T C C A T G A G A T G A T C 180
Db	217 c a g c a g a t c t t c a a t c t t c t c a g c a c a a g g a c t c a t c t g c t g t t g g g a t g a g a c c t c 276
Qy	181 C A C G A G A T C T T C A A T C T T T C A G C A C A A G A G A C T A C T G C T C T T G G A T G A G A C C C T C 240
Db	277 c t a g a a a a t t c t a c a t g a a c t a c c a g c a g c t g a a t g a c c t g g a a g c c t g t g a t a 336
Qy	241 C T A G A C A A A T T C T A C A C T G A A C T C T A C C A G A C A C T G A A T G A C C T G A A G C C T G T G A T A 300
Db	337 c a g g g g t g g g g t g a c a g a g a c t c c c c t a t g a g g a g g a c t c c a t t c t g g c t g t g a g g 396
Qy	301 C A G G G G T G G G G T G A C A G A G A C T C C C T G A T G A A G G A G G A C T C C A T T C T G G G T G T G A G G 360
Db	397 a a t a c t t c c a a a g a a t c a t c t c t a t c t g a a g a g a g a a a t a c a g c c t t g t g c c t g g 456
Qy	361 A A A T A C T T C C A A A G A A T C A C T C T C T A T C T G A A A G A G A A A A T A C A G C C C T T G C C T G G 420
Db	457 g a g g t t g c a g a c a g a a a t c a t g a g a t c t t t t t c t t g t c a a a a c t t g c a a g a a g t 516
Qy	421 G A G G T T G T C A C A G A G A A A A T C A T G A G A T C T T T T T C T T T G T C A C A A A C T T G C A A A A G T 480
Db	517 t t a a g a a c t a a g a a 531
Qy	481 T T A A G A A G T A A G G A A 495

RESULT	14		
LOCUS	104160	958 bp ss-DNA	PAT
DEFINITION	Sequence 1 from patent US 4678751.		
ACCESSION	104160		
KEYWORDS	.		
05-MAR-1993			

SOURCE Unknown.
ORGANISM Unknown.
REFERENCE 1 (bases 1 to 958)
AUTHORS Goeddel,D.V.
TITLE Hybrid human leukocyte interferons
JOURNAL Patent: US 4678751-A 1 07-JUL-1987;
Genentech, Inc.;
San Francisco, CA;
COMMENT NCBI gi: 268726
FEATURES Location/Qualifiers
source l..958
/organism="unknown"
BASE COUNT 266 a 211 c 193 g 288 t
ORIGIN
DB 93; Score 491; Match 99.6%; QryWatch 99.2%; Pred. No. 0.00e+00;
Matches 493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 130 tgtgatctgcctcaaacccacagcctgggtacgagagaccttgatgctcctggcacag 189
Qy 1 TGTGATCTGCCTCAAAACACAGCCTGGGTAGCAGGACGCTTGATGCTCTGGCACAG 60
Db 190 atgagaaatctctcttttctcgttgaggagacacatgactttggatttccccag 249
Qy 61 ATGAGGAGAAATCTCTTTTCTCTGCTTGAAGGACAGACGCTTGATGCTTCCCGAG 120
Db 250 gagagtttggcaaccagttccaaaaggctgaaaccatccctgtcctccatgatgatc 309
Qy 121 GAGGAGTTTGGCAACACAGTTCCAAAAGGCTGAACCATCCCTGTCTCCATGAGATGATC 180
Db 310 cagcagatcttcaatctcttcagcaaaaaggactcatctgctgttgggatgagaccctc 369
Qy 181 CAGCAGATCTTCAATCTCTTACGACAAAAGGACTCATCTGCTGGGATGAGACCTC 240
Db 370 ctagacaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 429
Qy 241 CTAGACAAATTTACACTGAACCTCTACACAGCAGCTGAATGACCTGGAAGCCTGTGTGATA 300
Db 430 cagggggtgggggtgacagagactcccttgatgaaggaggactccattctggctgtgagg 489
Qy 301 CAGGGGTGGGGGTGACAGAGACTCCCTTGATGAAGGAGGACTCCATTCTGGCTGTGAGG 360
Db 490 aaatacttccaaagaatcactctctatctgaaagagaagaatacagcccttggcctgg 549
Qy 361 AAATACTTCCAAAGATCACTCTATCTGAAGAGAGAGAAATACAGCCCTTGTGCTGG 420
Db 550 gaggttgcagagcagaataatcatgagatcttttcttgcacaaacttgcaagaaagt 609
Qy 421 GAGGTGTCAGAGCAGAAATCATGAGATCTTTTCTTGTCAACAACACTTGCAGAAAGT 480
Db 610 ttaagaagtaaggaa 624
Qy 481 TTAAGAAGTAAGGAA 495

RESULT 15
LOCUS 101766 958 bp ss-DNA PAT 05-MAR-1993
DEFINITION Sequence 1 from patent US 4801685.
ACCESSION 101766
KEYWORDS
SOURCE Unknown.
ORGANISM Unknown.

Unclassified.
REFERENCE 1 (bases 1 to 958)
AUTHORS Goeddel,D.V. and Pestka,S.
TITLE Microbial production of mature human leukocyte interferon K and L
JOURNAL Patent: US 4801685-A 1 31-JAN-1989;
Hoffmann-La Roche Inc.;
Nutley, NJ;
COMMENT NCBI gi: 269810
FEATURES Location/Qualifiers
source l..958
/organism="unknown"
BASE COUNT 266 a 211 c 193 g 288 t
ORIGIN
DB 93; Score 491; Match 99.6%; QryWatch 99.2%; Pred. No. 0.00e+00;
Matches 493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
Db 130 tgtgatctgcctcaaacccacagcctgggtacgagagaccttgatgctcctggcacag 189
Qy 1 TGTGATCTGCCTCAAAACACAGCCTGGGTAGCAGGACGCTTGATGCTCTGGCACAG 60
Db 190 atgagaaatctctcttttctcgttgaggagacacatgactttggatttccccag 249
Qy 61 ATGAGGAGAAATCTCTTTTCTCTGCTTGAAGGACAGACGCTTGATGCTTCCCGAG 120
Db 250 gagagtttggcaaccagttccaaaaggctgaaaccatccctgtcctccatgatgatc 309
Qy 121 GAGGAGTTTGGCAACACAGTTCCAAAAGGCTGAACCATCCCTGTCTCCATGAGATGATC 180
Db 310 cagcagatcttcaatctcttcagcaaaaaggactcatctgctgttgggatgagaccctc 369
Qy 181 CAGCAGATCTTCAATCTCTTACGACAAAAGGACTCATCTGCTGGGATGAGACCTC 240
Db 370 ctagacaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 429
Qy 241 CTAGACAAATTTACACTGAACCTCTACACAGCAGCTGAATGACCTGGAAGCCTGTGTGATA 300
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Qy 301 CAGGGGTGGGGGTGACAGAGACTCCCTTGATGAAGGAGGACTCCATTCTGGCTGTGAGG 360
Db 490 aaatacttccaaagaatcactctctatctgaaagagaagaatacagcccttggcctgg 549
Qy 361 AAATACTTCCAAAGATCACTCTATCTGAAGAGAGAGAAATACAGCCCTTGTGCTGG 420
Db 550 gaggttgcagagcagaataatcatgagatcttttcttgcacaaacttgcaagaaagt 609
Qy 421 GAGGTGTCAGAGCAGAAATCATGAGATCTTTTCTTGTCAACAACACTTGCAGAAAGT 480
Db 610 ttaagaagtaaggaa 624
Qy 481 TTAAGAAGTAAGGAA 495

Search completed: Tue Aug 29 18:47:24 1995
Job time : 402 secs.


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# authors Goeddel, D.V.; Leung, D.W.; Dull, T.J.; Gross, M.; Lawn,
R.M.; McCandless, R.; Seeburg, P.H.; Ullrich, A.;
Yelverton, E.; Gray, P.W.
# journal Nature (1981) 290:20-26
# title The structure of eight distinct cloned human leukocyte
interferon cDNAs.
#cross-references MUID:81148795
#accession D93249
##molecule_type mRNA
##residues 1-188 ##label GO2
##note eight classes of interferon alpha clones were
identified; this sequence is derived from class A
REFERENCE
#authors A93888
Lawn, R.M.; Gross, M.; Houck, C.M.; Franke, A.E.; Gray, P.V.;
Goeddel, D.V.
# journal Proc. Natl. Acad. Sci. U.S.A. (1981) 78:5435-5439
# title DNA sequence of a major human leukocyte interferon gene.
#cross-references MUID:82060261
#accession A93888
##molecule_type DNA
##residues 1-45,'R',47-188 ##label LAW
##experimental source clone lambda-alpha-2
REFERENCE
#authors Streuli, M.; Nagata, S.; Weissmann, C.
# journal Science (1980) 209:1343-1347
# title At least three human type alpha interferons: structure of
alpha2.
#cross-references MUID:81015442
#accession A94252
##molecule_type mRNA
##residues 7-45,'R',47-188 ##label STR
REFERENCE
#authors Wetzel, R.
# journal Nature (1981) 289:606-607
# title Assignment of the disulphide bonds of leukocyte interferon.
#cross-references MUID:81123083
#contents annotation; disulfide bonds
CLASSIFICATION #superfamily interferon alpha
FEATURE
1-23 #domain signal sequence #status experimental #label StG\
24-121,52-161 #disulfide_bonds #status experimental
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Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
Db 24 cdipqthslgsrrtllmllagmrkislfscldkrdhfgfpqeeqngfqkaetipvlhemi 83
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Qy 1 CDLPQTHSLGSRRTLLMLLAQMRRIISLFCLEKDRDPFGFPQEEFGNQFQKAETIPVLHEMI 60
|||||
Db 84 qqifnlftkdsaaawdetlldkfyelyqqldleacvlgvqvtetpinksilavr 143
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Qy 61 QQIFNLFSTKSSAAWDETLLDKFYELYQQLDLEACVIGVGVTETPLMKEDSILAVR 120
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Db 144 kyfqrityllykkykspcawevraeimrfsfstlnqlsrske 188
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Qy 121 KYFQRITLYLKEKKYSPCAWEVRAEIMRFSFSLSLTNQLSRSKE 165
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ALTERNATE_NAMES human leukocyte interferon (IFN)
ORGANISM #formal_name Homo sapiens #common_name man
1-23 #domain signal sequence #status experimental #label StG\
24-121,52-161 #disulfide_bonds #status experimental
SUMMARY #length 188 #molecular-weight 21550 #checksum 1790
DB 2; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 8.11e-178;
Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
Db 24 cdipqthslgsrrtllmllagmrkislfscldkrdhfgfpqeeqngfqkaetipvlhemi 83
|||||
Qy 1 CDLPQTHSLGSRRTLLMLLAQMRRIISLFCLEKDRDPFGFPQEEFGNQFQKAETIPVLHEMI 60
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Db 84 qqifnlftkdsaaawdetlldkfyelyqqldleacvlgvqvtetpinksilavr 143
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Qy 61 QQIFNLFSTKSSAAWDETLLDKFYELYQQLDLEACVIGVGVTETPLMKEDSILAVR 120
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Db 144 kyfqrityllykkykspcawevraeimrfsfstlnqlsrske 188
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Qy 121 KYFQRITLYLKEKKYSPCAWEVRAEIMRFSFSLSLTNQLSRSKE 165
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DATE 16-Aug-1988 #sequence_revision 16-Aug-1988 #text_change
27-Jan-1995
ACCESSIONS A25843
REFERENCE A91374
#authors Ohara, O.; Teraoka, H.
# journal FEBS Lett. (1987) 211:78-82
# title Anomalous behavior of human leukocyte interferon subtypes on
polyacrylamide gel electrophoresis in the presence of
dodecyl sulfate.
#cross-references MUID:87105954
#accession A25843
##molecule_type mRNA
##residues 1-166 ##label ONA
##note sequence not compared to nucleotide translation
nucleotide sequence is not given
#superfamily interferon alpha
CLASSIFICATION #length 166 #molecular-weight 19372 #checksum 7612
SUMMARY
DB 4; Score 1210; Match 98.8%; QryMatch 99.0%; Pred. No. 8.11e-178;
Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
Db 2 cdipqthslgsrrtllmllagmrkislfscldkrdhfgfpqeeqngfqkaetipvlhemi 61
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Qy 1 CDLPQTHSLGSRRTLLMLLAQMRRIISLFCLEKDRDPFGFPQEEFGNQFQKAETIPVLHEMI 60
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Db 62 qqifnlftkdsaaawdetlldkfyelyqqldleacvlgvqvtetpinksilavr 121
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Qy 61 QQIFNLFSTKSSAAWDETLLDKFYELYQQLDLEACVIGVGVTETPLMKEDSILAVR 120
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Db 122 kyfqrityllykkykspcawevraeimrfsfstlnqlsrske 166
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Qy 121 KYFQRITLYLKEKKYSPCAWEVRAEIMRFSFSLSLTNQLSRSKE 165
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RESULT 3
ENTRY #type complete
TITLE interferon alpha-1-14 precursor - human
ALTERNATE_NAMES HuIFN-alpha-1-14; lambda-2-h; type I interferon
ORGANISM #formal_name Homo sapiens #common_name man
DATE 01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change
18-Nov-1994
ACCESSIONS A92916; A94255; B93249; A01834; C23753
REFERENCE A92916
#authors Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes,
J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.;
Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.;
Weissmann, C.
# journal J. Mol. Biol. (1985) 185:227-260
# title Structural relationship of human interferon alpha genes and
pseudogenes.
#cross-references MUID:86037205
#accession A92916
##molecule_type DNA
##residues 1-189 ##label HEN
REFERENCE A94255
#authors Lawn, R.M.; Adelman, J.; Dull, T.J.; Gross, M.; Goeddel, D.;
Ullrich, A.
# journal Science (1981) 212:1159-1162
# title DNA sequence of two closely linked human leukocyte interferon
genes.
#cross-references MUID:81201124
#accession A94255
##molecule_type DNA
##residues 1-189 ##label LAW

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REFERENCE      A93249
#authors      Goeddel, D.V.; Leung, D.W.; Dull, T.J.; Gross, M.; Lawn,
               R.M.; McCandliss, R.; Seeburg, P.H.; Ullrich, A.;
               Yelverton, E.; Gray, P.W.
#journal      Nature (1981) 290:20-26
#title        The structure of eight distinct cloned human leukocyte
               interferon cDNAs.
#cross-references MUID:81148795
#accession     B93249
#molecule_type mRNA
#residues      1-174, 'F', 176-189 ##label GOE
##note        a variant sequence differs from that shown in having the
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               result of a deletion followed by an insertion

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GENETICS
#gene
#map_position
CLASSIFICATION #superfamily interferon alpha
KEYWORDS antiviral
FEATURE
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24-189 #product interferon alpha-I-14 #label MAT\
24-122, 52-162 #disulfide bonds #status predicted
#length 189 #molecular-weight 22062 #checksum 2404
SUMMARY

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DB 2; Score 1050; Match 81.9%; QryMatch 85.9%; Pred. No. 8.45e-151; Matches 136; Conservative 19; Mismatches 10; Indels 1; Gaps 1;

[illegible]

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84 mqtqfnlfstknssawdetllekfyielfaqmndleacviqevgeetplnnedsilav 143
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60 tootenifstokssaawdettldketytyooldnfacyiovgvgtptlmkedsilav 119
```

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Db      144 kkyfqrilymekkyspcawevraeimsrslfstnlqrlrrkd 189
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Ov      120 kyfqrilylkkkyspcawevraeimsrslfstnlqoeslrsk 165

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RESULT	4	D25843	#type complete
ENTRY		interferon alpha-G - human	
TITLE		human leukocyte interferon (IFN)	
ALTERNATE_NAMES		#formal name Homo sapiens #common name man	
ORGANISM		16-Aug-1988	#sequence_revision 16-Aug-1988
DATE		27-Jan-1995	#text_change

ACCESSIONS	REFERENCE	#authors	# journal	#title
D25843				
A91374	Ohara, O.; Teraoka, H.			
	FEMS Lett. (1987) 211/78-82			
	Anomalous behavior of human leukocyte interferon subtypes on			
	polyacrylamide gel electrophoresis in the presence of			
	dodecyl sulfate.			

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#cross-references MUID:87105954
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##residues 1-167 ##label OHA
##note sequence not compared to nucleotide translation
nucleotide sequence is not given
#superfamily interferon alpha
#length 167 #molecular-weight 19540 #checksum 57
CLASSIFICATION
SUMMARY

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DB 4; Score 1050; Match 84.9%; QryMatch 85.9%; Pred. No. 8.45e-151; Matches 141; Conservative 14; Mismatches 10; Indels 1; Gaps 1;

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Db      2 cdlpqthslsnrrtlmimaqmgrispsfclckdrhdfpqqeefdgntqkaqaisvlihem 61
        |||||:::||||::||| ||| |||||:::||||| |||||:::|||||
Ov      1 cdipthslgsrrtllmaombrislfsclckrrdfeppoeef-gnfokaetpvlhem 59

```

[illegible]

Db 122 rkyfqrtillytekkyspcawvraeimmrfslsanqlrrke 167
 ||||| ||||| ||||| ||||| ||||| ||||| : ||| |||
 Q.. 120 pveoortivltekksydcawvraafimprfslstnloeslrsk 165

RESULT	5	
ENTRY	IVHUI6	#type complete
TITLE	interferon alpha-i-6 precursor - human	
ALTERNATE_NAMES	HUIF1-alpha-i-6; Leif K; type I interferon	
ORGANISM	#formal_name Homo sapiens	#common_name man
DATE	28-Dec-1987	#sequence_revision 28-Dec-1987
	18-Nov-1994	#text_change

ACCESSIONS
A23753
REFERENCE
A92916

Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes, J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.; Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.; Weismann, C.

#journal J. Mol. Biol. (1985) 185:227-260
#title Structural relationship of human interferon alpha genes and pseudogenes.

```

#cross-references MUID:86037205
#accession A23753
#molecule_type DNA
#residues 1..180.881 abcd HFN

```

GENETICS
#gene IFNA
#map position 9p22-pl3
CLASSIFICATION #superfamily interferon alpha
KEYWORDS antiviral

```

FEATURE
1-23      #domain signal sequence #status predicted #label SIG\
24-189    #product interferon alpha-I-6 #label MAT\
24-122,52-162 #disulfide bonds #status predicted
SUMMARY
#length 189 #molecular-weight 22140 #checksum 4413

```

DB 2; Score 1049; Match 86.1%; QryMatch 85.8%; Pred. No. 1.25e-150; Matches 143; Conservative 8; Mismatches 14; Indels 1; Gaps 1;

D**b** 24 cdlpqthslghrtrtmllagmrriisfscldkdhdfpfqeefdgnqfqtaeaisvlhev 83
||||| ||||| : ||||| ||||| : ||||| ||||| : ||||| : ||||| : ||||| :

Qy 1 CDLPQTHSLGSRRTMLLAQWRRISLFSCICKRRDFGFPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfstkdsavawderlldklytelylqqIndleacvmqevvrggtplmnedsilav 143

Qy 60 IQQIFNLFSTROSSAAWDEIILDKFYELYQQINDLEACVIOGVGTETPLMKEDSILAV 119

Db

144 rkyfqriltytekkyspcawevvraeImrfssrnIqerlrke 189
||||||| ||||| ||||| ||||| | ||| ||
Gy

120 RYFQRITLYtEKKYSPCAwEVVRAEI mRSFSLTnIQESTLRKE 165

RESULT 6

```

ENTRY      IVHD4B      #type complete
TITLE      interferon alpha-I-4b precursor - human
ALTERNATE_NAMES HuIFN-alpha-I-4b; type I interferon
ORGANISM   #formal_name Homo sapiens #common_name man
DATE       28-Dec-1987 #sequence_revision 28-Dec-1987 #text_change
18-Nov-1994
ACCESSIONS E23753
REFERENCE  A92916
#authors   Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes,
J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.;
Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.;
Weissmann, C.
#journal   J. Mol. Biol. (1985) 185:227-260
#title     Structural relationship of human interferon alpha genes and
pseudogenes.
#cross-references MUID:86037205
#accession E23753
#molecule_type DNA
#residues  1-189 #label HEN
GENETICS
#gene      IFNA
#map_position 9p22-pl3
CLASSIFICATION #superfamily interferon alpha
KEYWORDS    antiviral
FEATURE
1-23       #domain signal sequence #status predicted #label SIG
24-189     #product interferon alpha-I-4b #label MAT\
24-122,52-162 #disulfide bonds #status predicted
SUMMARY    #length 189 #molecular-weight 21808 #checksum 2553

DB 2; Score 1030; Match 81.3%; QryMatch 84.3%; Pred. No. 1.97e-147;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;
Db 24 cdllpqtshlgnrralllqagmrspfcldkrdhfgfpqeedqgqfkaaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 1 CDLPQTHSLGSRRTLMLLAQMRRLISLFCIKDRDRDFGPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfstsdasaweqsllekfstelnyqqlndleacviquevgveetplmnydsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 60 IQQIFNLSTKDSAAWDETLLDKFYTELQYQQLNDLEACVIOGVGVTEPLMKEDSILAV 119

Db 144 kyfgritlyltckyspcawevvraeimrslfsltnlqeslsrsk 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 120 RKYFORITLYLKEKYSPCAMEVVRRAEIMRSFSLTNLQESLSRKE 165

SUMMARY    #length 189 #molecular-weight 21808 #checksum 2553

DB 2; Score 1030; Match 81.3%; QryMatch 84.3%; Pred. No. 1.97e-147;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;
Db 24 cdllpqtshlgnrralllqagmrspfcldkrdhfgfpqeedqgqfkaaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 1 CDLPQTHSLGSRRTLMLLAQMRRLISLFCIKDRDRDFGPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfstsdasaweqsllekfstelnyqqlndleacviquevgveetplmnydsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 60 IQQIFNLSTKDSAAWDETLLDKFYTELQYQQLNDLEACVIOGVGVTEPLMKEDSILAV 119

Db 144 kyfgritlyltckyspcawevvraeimrslfsltnlqeslsrsk 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 120 RKYFORITLYLKEKYSPCAMEVVRRAEIMRSFSLTNLQESLSRKE 165

RESULT      7
ENTRY      IVHUF      #type complete
TITLE      interferon alpha-I-F precursor - human
ALTERNATE_NAMES HuIFN-alpha-I-F; LeIF F; type I interferon
ORGANISM   #formal_name Homo sapiens #common_name man
DATE       01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change
18-Nov-1994
ACCESSIONS A01832
REFERENCE  A93249
#authors   Goeddel, D.V.; Leung, D.W.; Dull, T.J.; Gross, M.; Lawn,
R.M.; McCandless, R.; Seeburg, P.H.; Ullrich, A.;
Yelverton, E.; Gray, P.W.
#journal   Nature (1981) 290:20-26
#title     The structure of eight distinct cloned human leukocyte
interferon cDNAs.
#cross-references MUID:81148795
#accession A01832
#molecule_type mRNA

```

```

#residues  1-189 #label GOE
#note      eight classes of interferon alpha clones were
identified; this sequence is derived from class F
GENETICS
#gene      IFNA
#map_position 9p22-pl3
CLASSIFICATION #superfamily interferon alpha
KEYWORDS    antiviral
FEATURE
1-23       #domain signal sequence #status predicted #label SIG
24-189     #product interferon alpha-I-F #label MAT\
24-122,52-162 #disulfide bonds #status predicted
SUMMARY    #length 189 #molecular-weight 21759 #checksum 2746

DB 2; Score 1027; Match 81.9%; QryMatch 84.0%; Pred. No. 6.29e-147;
Matches 136; Conservative 16; Mismatches 13; Indels 1; Gaps 1;
Db 24 cdllpqtshlgnrralllqagmrspfcldkrdhfgfpqeedqgqfkaaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 1 CDLPQTHSLGSRRTLMLLAQMRRLISLFCIKDRDRDFGPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfstsdasaweqsllekfstelnyqqlndleacviquevgveetplmnydsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 60 IQQIFNLSTKDSAAWDETLLDKFYTELQYQQLNDLEACVIOGVGVTEPLMKEDSILAV 119

Db 144 kyfgritlyltckyspcawevvraeimrslfsltnlqeslsrsk 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 120 RKYFORITLYLKEKYSPCAMEVVRRAEIMRSFSLTNLQESLSRKE 165

RESULT      8
ENTRY      E25843      #type complete
TITLE      interferon alpha-F - human
ALTERNATE_NAMES human leukocyte interferon (IFN)
ORGANISM   #formal_name Homo sapiens #common_name man
DATE       16-Aug-1988 #sequence_revision 16-Aug-1988 #text_change
27-Jan-1995
ACCESSIONS E25843
REFERENCE  A91374
#authors   Ohara, O.; Teraoka, H.
#journal   FEBS Lett. (1987) 211:78-82
#title     Anomalous behavior of human leukocyte interferon subtypes on
polyacrylamide gel electrophoresis in the presence of
dodecyl sulfate.
#cross-references MUID:87105954
#accession E25843
#molecule_type mRNA
#residues  1-167 #label OHA
#note      sequence not compared to nucleotide translation
#note      nucleotide sequence is not given
CLASSIFICATION #superfamily interferon alpha
SUMMARY    #length 167 #molecular-weight 19461 #checksum 9875

DB 4; Score 1027; Match 81.9%; QryMatch 84.0%; Pred. No. 6.29e-147;
Matches 136; Conservative 16; Mismatches 13; Indels 1; Gaps 1;
Db 2 cdllpqtshlgnrralllqagmrspfcldkrdhfgfpqeedqgqfkaaisvlhem 61
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 1 CDLPQTHSLGSRRTLMLLAQMRRLISLFCIKDRDRDFGPQEEF-GNQFQKAETIPVLHEM 59

Db 62 iqqtfnlfstsdasaweqsllekfstelnyqqlndleacviquevgveetplmnydsilav 121
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 60 IQQIFNLSTKDSAAWDETLLDKFYTELQYQQLNDLEACVIOGVGVTEPLMKEDSILAV 119

```



```

* ORGANISM      #formal_name Homo sapiens #common_name man
DATE            01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change
               30-Sep-1993
ACCESSIONS      A01835
REFERENCE       A94255
#authors        Lawn, R.M.; Adelman, J.; Dull, T.J.; Gross, M.; Goeddel, D.;
                Ullrich, A.
#journal        Science (1981) 212:1159-1162
#title          DNA sequence of two closely linked human leukocyte interferon
                genes.
#cross-references MUID:81201124
#accession      A01835
#molecule_type DNA
#residues       1-189 ##label LAW
#note           residues 1-23 correspond to the signal sequence
CLASSIFICATION  #superfamily interferon alpha
SUMMARY         #length 189 #molecular-weight 21698 #checksum 2966

DB 2; Score 1023; Match 81.3%; OryMatch 83.7%; Pred. No. 2.96e-146;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;

Db 24 cdipqthslgnrrallilagmgrispsfclrdpdlpqeefdnqfqtqaisvlihem 83
   |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 1 CDLPQTHSIGSRRTLLLAQMRRLISLFCIKDRDRFGFPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqtfnlstdsaaaweqsllekfstelyqqlmleacvigeqvmteplmndsilav 143
   |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 60 IQQIFNLFSTKDSAAWDETLDDKFTELYQQLNDLEACVIGGVGTETPLMKEDSILAV 119

Db 144 rkyfqrtilytkkyspcawevvraeimrslsfstnlqklrrkd 189
   |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 120 RKYFQRITLYLKEKKYSPCAWEVVRAEIMRFSLSLTNIQESLSRKE 165

RESULT 13
ENTRY      IVHWA5      #type complete
TITLE      interferon alpha-5 precursor - human
ORGANISM   #formal_name Homo sapiens #common_name man
DATE       01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change
               18-Nov-1994
ACCESSIONS A60937; A01830
REFERENCE   A60937
#authors    Bartholomew, C.; Windass, J.D.
#journal    J. Interferon Res. (1989) 9:407-417
#title      Identification of a functional allele of a human
            interferon-alpha gene previously characterized as a
            pseudogene.
#accession  A60937
#molecule_type DNA
#residues   1-189 ##label BAR
#note       this genomic sequence, SMTIII.1A, encodes a functional
            allele for alpha interferon at the locus pseudo-Leif-L
            that, in other allelic forms, contains a stop codon at
            the end of the signal sequence and is a pseudogene.

REFERENCE   A93249
#authors    Goeddel, D.V.; Leung, D.W.; Dull, T.J.; Gross, M.; Lawn,
            R.M.; McCandless, R.; Seeburg, P.H.; Ullrich, A.;
            Yelverton, E.; Gray, P.W.
#journal    Nature (1981) 290:20-26
#title      The structure of eight distinct cloned human leukocyte
            interferon cDNAs.
#cross-references MUID:81148795
#accession  A01830
#molecule_type mRNA

```

```

#residues       1-189 ##label GOE
#note           eight classes of interferon alpha clones were
                identified; this sequence is derived from class C
CLASSIFICATION  #superfamily interferon alpha
FEATURE         1-23
SUMMARY         #domain signal sequence #status predicted #label SIG
                #length 189 #molecular-weight 21835 #checksum 2522

DB 2; Score 1017; Match 81.3%; OryMatch 83.2%; Pred. No. 3.03e-145;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;

Db 24 cdipqthslgnrrallilagmgrispsfclrdhfrfpqeednqfqtqaisvlihem 83
   |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 1 CDLPQTHSIGSRRTLLLAQMRRLISLFCIKDRDRFGFPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqtfnlstdsaaaweqsllekfstelyqqlndleacvigeqvmteplmndsilav 143
   |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 60 IQQIFNLFSTKDSAAWDETLDDKFTELYQQLNDLEACVIGGVGTETPLMKEDSILAV 119

Db 144 rkyfqrtilytkkyspcawevvraeimrslsfstnlqklrrkd 189
   |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 120 RKYFQRITLYLKEKKYSPCAWEVVRAEIMRFSLSLTNIQESLSRKE 165

RESULT 14
ENTRY      F25843      #type complete
TITLE      interferon alpha-J - human
ALTERNATE_NAMES human leukocyte interferon (IFN)
ORGANISM     #formal_name Homo sapiens #common_name man
DATE         16-Aug-1988 #sequence_revision 16-Aug-1988 #text_change
               27-Jan-1995
ACCESSIONS   F25843
REFERENCE     A91374
#authors      Ohara, O.; Teraoka, H.
#journal      FEBS Lett. (1987) 211:78-82
#title        Anomalous behavior of human leukocyte interferon subtypes on
                polyacrylamide gel electrophoresis in the presence of
                dodecyl sulfate.
#cross-references MUID:87105954
#accession    F25843
#molecule_type mRNA
#residues     1-167 ##label OHA
#note         sequence not compared to nucleotide translation
                nucleotide sequence is not given
#note         #superfamily interferon alpha
CLASSIFICATION #length 167 #molecular-weight 19737 #checksum 451
SUMMARY

DB 4; Score 1012; Match 79.5%; OryMatch 82.8%; Pred. No. 2.10e-144;
Matches 132; Conservative 20; Mismatches 13; Indels 1; Gaps 1;

Db 2 cdipqthslgnrrallilagmgrispsfclrdhrfpeeeefdnqfqtqaisvlihem 61
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Qy 1 CDLPQTHSIGSRRTLLLAQMRRLISLFCIKDRDRFGFPQEEF-GNQFQKAETIPVLHEM 59

Db 62 iqtfnlstdsaaaweqsllekfstelyqqlndleacvigeqvmteplmndfilav 121
   |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 60 IQQIFNLFSTKDSAAWDETLDDKFTELYQQLNDLEACVIGGVGTETPLMKEDSILAV 119

Db 122 rkyfqrtilytkkyspcawevvraeimrslsfstnlqklrrkd 167
   |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Qy 120 RKYFQRITLYLKEKKYSPCAWEVVRAEIMRFSLSLTNIQESLSRKE 165

RESULT 15

```

```

ENTRY      IVRU18      #type complete
TITLE      interferon alpha-I-8 precursor - human
ALTERNATE_NAMES HuIFN-alpha-I-8; type I interferon
ORGANISM   #formal_name Homo sapiens #common_name man
DATE       28-Dec-1987 #sequence_revision 28-Dec-1987 #text_change
          18-Nov-1994

ACCESSIONS D23753
REFERENCE  A29216
AUTHORS    Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes,
          J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.;
          Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.;
          Weissmann, C.
JOURNAL    J. Mol. Biol. (1985) 185:227-260
TITLE      Structural relationship of human interferon alpha genes and
          pseudogenes.
CROSS-REFERENCES MUID:86037205
ACCESSION  D23753
MOLECULE_TYPE DNA
RESIDUES   1-189 ##label HEN

GENETICS
GENE       IFNA
MAP_POSITION 9p22-p13
CLASSIFICATION #superfamily interferon alpha
KEYWORDS    antiviral
FEATURE
1-23       #domain signal sequence #status predicted #label SIG\
24-189     #product interferon alpha-I-8 #label MAT\
24-122,52-162 #disulfide_bonds #status predicted
SUMMARY    #length 189 #molecular_weight 21989 #checksum 1052

DB 2; Score 1012; Match 82.5%; OryMatch 82.8%; Pred. No. 2.10e-144;
Matches 137; Conservative 13; Mismatches 15; Indels 1; Gaps 1;

Db 24 cdllpqtshlgnrtalllagnrrispsfclkdrrhdfpqqefddkqfkaqaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 1 CDLPQTHSLGSRRTTLLAQMRRLSLFSCIKDRRDFGFPQEEFGN-QFOAETIPVLHEM 59

Db 84 iqqtfnlftkdsaaadetiildfyieldqqindlscvmqevqviesplmysdsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
QY 60 IQQIFNLFSTKSSAAWDETLDDKFTELYQQNLNLEACVIGVGVTETPLMKEDSILAV 119

Db 144 rkyfqrtilylekkysscawevvraeimrfsislndqlrlske 189
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QY 120 RKYFQRITLYLKEKYSPCAEVVRAEIMRSFSLTNLQESILRSKE 165

```

Search completed: Tue Aug 29 17:06:58 1995
 Job time : 22 secs.


```

#authors Goeddel, D.V.; Leung, D.W.; Dull, T.J.; Gross, M.; Lawn,
R.M.; McCandliss, R.; Seeburg, P.H.; Ullrich, A.;
Felverton, E.; Gray, P.W.
#journal Nature (1981) 290:20-26
#title The structure of eight distinct cloned human leukocyte
interferon cDNAs.
#cross-references MUID:81148795
#accession D93249
##molecule_type mRNA
##residues 1-188 ##label G02
##note eight classes of interferon alpha clones were
identified; this sequence is derived from class A
REFERENCE
#authors A93888
Lawn, R.M.; Gross, M.; Houck, C.M.; Franke, A.E.; Gray, P.V.;
Goeddel, D.V.
#journal Proc. Natl. Acad. Sci. U.S.A. (1981) 78:5435-5439
#title DNA sequence of a major human leukocyte interferon gene.
#cross-references MUID:82060261
#accession A93888
##molecule_type DNA
##residues 1-45, 'R', 47-188 ##label LAW
##experimental source clone lambda-alpha-2
REFERENCE
#authors Streuli, M.; Nagata, S.; Weissmann, C.
#journal Science (1980) 209:1343-1347
#title At least three human type alpha interferons: structure of
alpha2.
#cross-references MUID:81015442
#accession A94252
##molecule_type mRNA
##residues 7-45, 'R', 47-188 ##label STR
REFERENCE
#authors Wetzel, R.
#journal Nature (1981) 289:606-607
#title Assignment of the disulphide bonds of leukocyte interferon.
#cross-references MUID:81123083
#contents annotation; disulfide bonds
CLASSIFICATION #superfamily interferon alpha
FEATURE
1-23 #domain signal sequence #status experimental #label SIG
24-121,52-161 #disulfide bonds #status experimental
SUMMARY
#length 188 #molecular-weight 21550 #checksum 1790
DB 2; Score 1210; Match 98.8%; OryMatch 99.0%; Pred. No. 8.11e-178;
Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
Db 24 cdipqthslgrtrtllmqlagmrkislscldkrdhdfqpeefgnfqkaetipvlhemi 83
|||||
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISLSCIKDRDFFGFPQEEFGNQFQKAETIPVLHEMI 60
|||||
Db 84 qqifnlfskdsaaawdetlldkfyelyqqldndleacvlgvgvgtetplmkdsilavr 143
|||||
Qy 61 QQIFNLFSTKDSNAWDETLLDKFYELYQQLDNDLEACVIGVGVTETPLMKEDSILAVR 120
|||||
Db 144 kyfgritlylkekyspcawevvraeimrsfslstnlqeslrsk 188
|||||
Qy 121 KYFORITLYLKEKRYSPCAWEVVRAEIMRSFSLSTNLQESLSRKE 165
|||||
RESULT 2
ENTRY
TITLE interferon alpha-A - human
ALTERNATE_NAMES human leukocyte interferon (IFN)
ORGANISM #formal_name Homo sapiens #common_name man

```

```

DATE 16-Aug-1988 #sequence_revision 16-Aug-1988 #text_change
27-Jan-1995
ACCESSIONS A25843
REFERENCE A91374
#authors Ohara, O.; Teraoka, H.
#journal FEBS Lett. (1987) 211:78-82
#title Anomalous behavior of human leukocyte interferon subtypes on
polyacrylamide gel electrophoresis in the presence of
dodecyl sulfate.
#cross-references MUID:87105954
#accession A25843
##molecule_type mRNA
##residues 1-166 ##label OHA
##note sequence not compared to nucleotide translation
##note nucleotide sequence is not given
CLASSIFICATION #superfamily interferon alpha
SUMMARY #length 166 #molecular-weight 19372 #checksum 7612
DB 4; Score 1210; Match 98.8%; OryMatch 99.0%; Pred. No. 8.11e-178;
Matches 163; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
Db 2 cdipqthslgrtrtllmqlagmrkislscldkrdhdfqpeefgnfqkaetipvlhemi 61
|||||
Qy 1 CDLPQTHSLGSRRTLLMLAQMRRIISLSCIKDRDFFGFPQEEFGNQFQKAETIPVLHEMI 60
|||||
Db 62 qqifnlfskdsaaawdetlldkfyelyqqldndleacvlgvgvgtetplmkdsilavr 121
|||||
Qy 61 QQIFNLFSTKDSNAWDETLLDKFYELYQQLDNDLEACVIGVGVTETPLMKEDSILAVR 120
|||||
Db 122 kyfgritlylkekyspcawevvraeimrsfslstnlqeslrsk 166
|||||
Qy 121 KYFORITLYLKEKRYSPCAWEVVRAEIMRSFSLSTNLQESLSRKE 165
|||||
RESULT 3
ENTRY
TITLE interferon alpha-I-14 precursor - human
ALTERNATE_NAMES HuIFN-alpha-I-14; lambda-2-h; type I interferon
ORGANISM #formal_name Homo sapiens #common_name man
DATE 01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change
18-Nov-1994
ACCESSIONS A92916; A94255; B93249; A01834; C23753
REFERENCE A92916
#authors Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes,
J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.;
Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.;
Weissmann, C.
#journal J. Mol. Biol. (1985) 185:227-260
#title Structural relationship of human interferon alpha genes and
pseudogenes.
#cross-references MUID:86037205
#accession A92916
##molecule_type DNA
##residues 1-189 ##label HEN
REFERENCE A94255
#authors Lawn, R.M.; Adelman, J.; Dull, T.J.; Gross, M.; Goeddel, D.;
Ullrich, A.
#journal Science (1981) 212:1159-1162
#title DNA sequence of two closely linked human leukocyte interferon
genes.
#cross-references MUID:81201124
#accession A94255
##molecule_type DNA
##residues 1-189 ##label LAW

```



```

REFERENCE      A93249
#authors      Goedel, D.V.; Leung, D.W.; Dull, T.J.; Grosse, M.; Lawn,
               R.M.; McCandless, R.; Seeburg, P.H.; Ullrich, A.;
               Yelverton, E.; Gray, P.W.
#journal      Nature (1981) 290:20-26
#title        The structure of eight distinct cloned human leukocyte
               interferon cDNAs.
#cross-references M01D:81148795
#accession    B93249
#molecule_type mRNA
#residues     1-174, 'F', 176-189 ##label GOE
##note        a variant sequence differs from that shown in having
               175-Phe, 182-Lys, and 184-Gly, the last two being the
               result of a deletion followed by an insertion

GENETICS
#gene         IFNA
#map_position 9p22-pl3
CLASSIFICATION ##superfamily interferon alpha
KEYWORDS       antiviral
FEATURE
1-23           #domain signal sequence #status predicted #label SIG\
24-189         #product interferon alpha-1-14 #label MAT\
24-122,52-162  #disulfide bonds #status predicted
SUMMARY        #length 189 #molecular-weight 22062 #checksum 2404

```

DB	2;	Score	1050;	Match	81.9%;	QryWatch	85.9%;	Pred.	No. 8.45e-151;
Matches	136;	Conservative	19;	Mismatches	10;	Indels	1;	Gaps	1;
Db	24	cmlsqthslnnr	lmlmagmrissfscldrhdfefpqeeqdgngfqkagaisvlhem	83					
Qy	1	CULPOTHSLSGRRTMLLQAQRRIISFLSCDKDRDRCFFQEEF-CNQFKAEITPVLIHEM	59						
Db	84	mqtqfnlfstknssaaawdetillekyfielfqgmndleacviquevgveetplmneedsilav	143						
Qy	60	IQQIENIFSTKDSRAAWDETLLDKFYELYQQIANDLEACVIGQGVGVTPLMKEDSILAV	119						
Db	144	kkygritlylmekyspcawevraeimrslsfstnlqlrrkd	189						
Qy	120	RKYFORITLYKEKYSPCAWEVRAEIMRSLFSLTNLQESLRKS	165						

```

RESULT      4
ENTRY
TITLE
ALTERNATE_NAMES
ORGANISM    #type complete
DATE        interferon alpha-G - human
            human leukocyte interferon (IFN)
            #formal name Homo sapiens #common name man
            16-Aug-1988 #sequence_revision 16-Aug-1988 #text_change
            27-Jan-1995
ACCESSIONS  D25843
REFERENCE   A91374
            #authors Ohara, O.; Teraoka, H.
            #journal FEBS Lett. (1987) 211:78-82
            #title   Anomalous behavior of human leukocyte interferon subtypes on
                    polycrylamide gel electrophoresis in the presence of
                    dodecyl sulfate.
            #cross-references M01D:87105954
            #accession D25843
            #molecule_type mRNA
            ##residues 1-167 ##label OHA
            ##note    sequence not compared to nucleotide translation
            ##note    nucleotide sequence is not given
            ##note    #superfamily interferon alpha
            #length 167 #molecular-weight 19540 #checksum 57
SUMMARY

```

[illegible]

RESULT	5
ENTRY	IVHU016 #type complete
TITLE	interferon alpha-1-6 precursor - human
ALTERNATE_NAMES	HuIFN-alpha-1-6; LeIF K; type I interferon
ORGANISM	#formal_name Homo sapiens #common_name man
DATE	28-Dec-1987 #sequence_revision 28-Dec-1987 #text_change 18-Nov-1994
ACCSSIONS	A23753
REFERENCE	A92916
#authors	Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes, J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.; Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.; Weissmann, C.
#journal	J. Mol. Biol. (1985) 185:227-260
#title	Structural relationship of human interferon alpha genes and pseudogenes.

```

#cross-references MUID:86037205
#accession A23753
#molecule_type DNA
#residues 1-189 ##label HEN

GENETICS
#gene IFNA
#map position 9p22-p13
#CLASSIFICATION #superfamily interferon alpha
KEYWORDS antiviral
FEATURE
1-23 #domain signal sequence #status predicted #label SIGA
24-189 #product interferon alpha-1-6 #label MAY
24-122,52-162 #disulfide bonds #status predicted
#length 189 #molecular-weight 22140 #checksum 4413

SUMMARY

DB 2; Score 1049; Match 86.1%; QryMatch 85.8%; Pred. No. 1.25e-150;
Matches 143; Conservative 8; Mismatches 14; Indels 1; Gaps 1;

```

Db	24	cdlpqthslghrtmmlagmrslsfclskldhrdfpqeefdqngfkaeasvlvhev	83
Qy	1	CDLPQTHSLGSRRTTLLAQAQRISLFSCLKDRDRFGFPQEEF-CNQFQKAEITPVLHEM	59
Db	84	iqgtfnfstkdsavawderlldklytelvqqlndleacmqevwvggtplmedsilav	143
Qy	60	IQQIFNFSFKOSSAAWDETLLDKFYTELVLQQLNDLEACVYIQGVGVETPFLMKEDSILAV	119
Db	144	rkfyqrilyltkkytspcawevvraeiamrsfssnqlqrllrke	189
Ov	120	KYFORITLYLEKSKYSPCAWEVVRVRAETIMRSFSLSTNLOESLRKE	165

RESULT 6

Aug 29 16:53 /home/pandya/smith249671/US-08-249-671-5.rpr

```

ENTRY          IVH04B      #type complete
TITLE          interferon alpha-I-4b precursor - human
ALTERNATE_NAMES HuIFN-alpha-I-4b; type I interferon
ORGANISM       #formal_name Homo sapiens #common_name man
DATE           28-Dec-1987 #sequence_revision 28-Dec-1987 #text_change
               18-Nov-1994
ACCESSIONS     E23753
REFERENCE      A92916
#authors       Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes,
               J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.;
               Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.;
               Weissmann, C.
#journal       J. Mol. Biol. (1985) 185:227-260
#title         Structural relationship of human interferon alpha genes and
               pseudogenes.
#cross-references MUID:86037205
#accession     E23753
#molecule_type DNA
#residues      1-189 #label HEN
GENETICS
#gene          IFNA
#map_position  9p22-p13
CLASSIFICATION #superfamily interferon alpha
KEYWORDS       antiviral
FEATURE
1-23           #domain signal sequence #status predicted #label SIG\
24-189         #product interferon alpha-I-4b #label MAT\
24-122,52-162 #disulfide_bonds #status predicted
SUMMARY        #length 189 #molecular_weight 21808 #checksum 2553

DB 2; Score 1030; Match 81.3%; OryMatch 84.3%; Pred. No. 1.97e-147;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;

Db 24 cdllpqtshlgnrralllqagmrisfscldkrdhdfgfpqeeefgqgkqtqaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTMLLAQMRRLISLFCGLKDRDRDFGFPQEEF-GNQFQKAEITPVLHEM 59
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 84 iqqtfnlfstedsaawegsllkfstelyqqlndleacvqevgveetplmnydsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQIFNLFSTKSSAAWDETLLDKFYTELYQQLNDLEACVIGVGVTETPLMKEDSILAV 119
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 144 rkyfqrtilytkkyspcawevvraeimsrfsfsltnlqeslsrsk 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 120 RKYFQRITLYLKEKYSPCAWEVVRAEIMRSFSLTNLQESLSRSKE 165
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 7
ENTRY          IVH0F      #type complete
TITLE          interferon alpha-I-F precursor - human
ALTERNATE_NAMES HuIFN-alpha-I-F; LeIF F; type I interferon
ORGANISM       #formal_name Homo sapiens #common_name man
DATE           01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change
               18-Nov-1994
ACCESSIONS     A01832
REFERENCE      A93249
#authors       Goeddel, D.V.; Leung, D.W.; Dull, T.J.; Grose, M.; Lawn,
               R.M.; McCandless, R.; Seeburg, P.H.; Ullrich, A.;
               Yelverton, E.; Gray, P.W.
#journal       Nature (1981) 290:20-26
#title         The structure of eight distinct cloned human leukocyte
               interferon cDNAs.
#cross-references MUID:81148795
#accession     A01832
#molecule_type mRNA

```

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```

#residues      1-189 #label GOE
#note          eight classes of interferon alpha clones were
               identified; this sequence is derived from class F
GENETICS
#gene          IFNA
#map_position  9p22-p13
CLASSIFICATION #superfamily interferon alpha
KEYWORDS       antiviral
FEATURE
1-23           #domain signal sequence #status predicted #label SIG\
24-189         #product interferon alpha-I-F #label MAT\
24-122,52-162 #disulfide_bonds #status predicted
SUMMARY        #length 189 #molecular_weight 21759 #checksum 2746

DB 2; Score 1027; Match 81.9%; OryMatch 84.0%; Pred. No. 6.29e-147;
Matches 136; Conservative 16; Mismatches 13; Indels 1; Gaps 1;

Db 24 cdllpqtshlgnrralllqagmrisfscldkrdhdfgfpqeeefgqgkqtqaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTMLLAQMRRLISLFCGLKDRDRDFGFPQEEF-GNQFQKAEITPVLHEM 59
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 84 iqqtfnlfstedsaawegsllkfstelngqldmeacvqevgveetplmnydsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQIFNLFSTKSSAAWDETLLDKFYTELYQQLNDLEACVIGVGVTETPLMKEDSILAV 119
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 144 kkyfqrtilytkkyspcawevvraeimsrfskifqerlrrke 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 120 RKYFQRITLYLKEKYSPCAWEVVRAEIMRSFSLTNLQESLSRSKE 165
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 8
ENTRY          E25843      #type complete
TITLE          interferon alpha-F - human
ALTERNATE_NAMES human leukocyte interferon (IFN)
ORGANISM       #formal_name Homo sapiens #common_name man
DATE           16-Aug-1988 #sequence_revision 16-Aug-1988 #text_change
               27-Jan-1995
ACCESSIONS     E25843
REFERENCE      A91374
#authors       Ohara, O.; Teraoka, H.
#journal       FEBS Lett. (1987) 211:78-82
#title         Anomalous behavior of human leukocyte interferon subtypes on
               polyacrylamide gel electrophoresis in the presence of
               dodecyl sulfate.
#cross-references MUID:87105954
#accession     E25843
#molecule_type mRNA
#residues      1-167 #label OHA
#note          sequence not compared to nucleotide translation
#note          nucleotide sequence is not given
CLASSIFICATION #superfamily interferon alpha
SUMMARY        #length 167 #molecular_weight 19461 #checksum 9875

DB 4; Score 1027; Match 81.9%; OryMatch 84.0%; Pred. No. 6.29e-147;
Matches 136; Conservative 16; Mismatches 13; Indels 1; Gaps 1;

Db 2 cdllpqtshlgnrralllqagmrisfscldkrdhdfgfpqeeefgqgkqtqaisvlhem 61
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTMLLAQMRRLISLFCGLKDRDRDFGFPQEEF-GNQFQKAEITPVLHEM 59
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 62 iqqtfnlfstedsaawegsllkfstelngqldmeacvqevgveetplmnydsilav 121
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQIFNLFSTKSSAAWDETLLDKFYTELYQQLNDLEACVIGVGVTETPLMKEDSILAV 119
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

```

```

Db 122 kkyfqrityllytkkyspcawevvraeimsfsfslkifqrlrrke 167
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 120 RKYFQRITLYLKEKKYSPCAWEVVRRAEIMRFSLSLTNIQESLSRKE 165

RESULT 9
ENTRY A22255 #type complete
TITLE Interferon alpha-I' precursor - human
ORGANISM #formal name Homo sapiens #common name man
DATE 31-Mar-1989 #sequence_revision 31-Mar-1989 #text_change 18-Jun-1993
ACCESSIONS A22255
REFERENCE A22255
#authors Mizoguchi, J.; Pitha, P.M.; Raj, N.B.K.
#journal DNA (1985) 4:221-232
#title Efficient expression in Escherichia coli of two species of human interferon-alpha and their hybrid molecules.
#cross-references M01D:85229953
#accession A22255
#molecule_type mRNA
#residues 1-189 ##label M1Z
CLASSIFICATION #superfamily interferon alpha
FEATURE 24-189
#product interferon alpha-I' #label MAT
SUMMARY #length 189 #molecular-weight 21728 #checksum 2510

```

```

Db 4; Score 1026; Match 81.3%; QryMatch 84.0%; Pred. No. 9.26e-147;
Matches 135; Conservative 19; Mismatches 11; Indels 1; Gaps 1;

Db 24 cdllpqtghlgnrralllaqmgrishfscldkrdhfglpqefdnqfqtqaisvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 1 CDLPQTHSLGSRRTMLLAQMRRIISLFCIKDRDRFCFPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfskdsaaawdetlldkfyielqqndleacvtqevgveeialmmedsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 60 IQQIFNLFSTKDSAAWDETLLDKFYELYQQNDLEACVIGQGVGTETPLMKEDSILAV 119

Db 144 rkyfqrityllytkkyspcawevvraeimsfsfslkifqrlrrkd 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 120 RKYFQRITLYLKEKKYSPCAWEVVRRAEIMRFSLSLTNIQESLSRKE 165

```

```

RESULT 10
ENTRY IVHU16 #type complete
TITLE Interferon alpha-I-16 precursor - human
ALTERNATE_NAMES HuIFN-alpha-I-16; type 1 interferon
ORGANISM #formal name Homo sapiens #common name man
DATE 28-Dec-1987 #sequence_revision 28-Dec-1987 #text_change 18-Nov-1994
ACCESSIONS G23753
REFERENCE A29216
#authors Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes, J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.; Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.; Weissmann, C.
#journal J. Mol. Biol. (1985) 185:227-260
#title Structural relationship of human interferon alpha genes and pseudogenes.
#cross-references M01D:86037205
#accession G23753
#molecule_type DNA
#residues 1-189 ##label HEN
GENETICS IFNA
#gene

```

```

#map_position 9p22-p13
CLASSIFICATION #superfamily interferon alpha
KEYWORDS antiviral
FEATURE 1-23
#domain signal sequence #status predicted #label SIGA
24-189 #product interferon alpha-I-16 #label MAT\
24-122,52-162 #disulfide bonds #status predicted
SUMMARY #length 189 #molecular-weight 21711 #checksum 45

Db 2; Score 1025; Match 82.5%; QryMatch 83.9%; Pred. No. 1.36e-146;
Matches 137; Conservative 14; Mismatches 14; Indels 1; Gaps 1;

Db 24 cdllpqtghlgnrralllaqmgrishfscldkrdyfgfpqevfdngfqkqaisafhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 1 CDLPQTHSLGSRRTMLLAQMRRIISLFCIKDRDRFCFPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfskdsaaawdetlldkfyielqqndleacvtqevgveeialmmedsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 60 IQQIFNLFSTKDSAAWDETLLDKFYELYQQNDLEACVIGQGVGTETPLMKEDSILAV 119

Db 144 rkyfqrityllytkkyspcawevvraeimsfsfslkifqrlrrkd 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 120 RKYFQRITLYLKEKKYSPCAWEVVRRAEIMRFSLSLTNIQESLSRKE 165

```

```

RESULT 11
ENTRY A22068 #type complete
TITLE Interferon alpha-I-Wa - human
ORGANISM #formal name Homo sapiens #common name man
DATE 20-Jul-1990 #sequence_revision 20-Jul-1990 #text_change 30-Sep-1993
ACCESSIONS A22068
REFERENCE A22068
#authors Torczynski, R.M.; Fuke, M.; Bollon, A.P.
#journal Proc. Natl. Acad. Sci. U.S.A. (1984) 81:6451-6455
#title Human genomic library screened with 17-base oligonucleotide probes yields a novel interferon gene.
#cross-references M01D:85038533
#accession A22068
#status preliminary
#molecule_type DNA
#residues 1-189 ##label TOR
CLASSIFICATION #superfamily interferon alpha
SUMMARY #length 189 #molecular-weight 21711 #checksum 45

```

```

Db 4; Score 1025; Match 82.5%; QryMatch 83.9%; Pred. No. 1.36e-146;
Matches 137; Conservative 14; Mismatches 14; Indels 1; Gaps 1;

Db 24 cdllpqtghlgnrralllaqmgrishfscldkrdyfgfpqevfdngfqkqaisafhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 1 CDLPQTHSLGSRRTMLLAQMRRIISLFCIKDRDRFCFPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfskdsaaawdetlldkfyielqqndleacvtqevgveeialmmedsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 60 IQQIFNLFSTKDSAAWDETLLDKFYELYQQNDLEACVIGQGVGTETPLMKEDSILAV 119

Db 144 rkyfqrityllytkkyspcawevvraeimsfsfslkifqrlrrkd 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Qy 120 RKYFQRITLYLKEKKYSPCAWEVVRRAEIMRFSLSLTNIQESLSRKE 165

RESULT 12
ENTRY IVHU09 #type complete
TITLE Interferon alpha-9 precursor - human

```

```
ORGANISM      #formal_name Homo sapiens #common_name man
DATE          01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change
              30-Sep-1993
ACCESSIONS    A01835
REFERENCE     A94255
#authors      Lawn, R.M.; Adelman, J.; Dull, T.J.; Gross, M.; Goeddel, D.;
              Ullrich, A.
#journal      Science (1981) 212:1159-1162
#title        DNA sequence of two closely linked human leukocyte interferon
              genes.
#cross-references M01D:81201124
#accession    A01835
#molecule_type DNA
#residues     1-189 #label LAW
#note         residues 1-23 correspond to the signal sequence
CLASSIFICATION #superfamily interferon alpha
SUMMARY       #length 189 #molecular-weight 21688 #checksum 2966

Db 2; Score 1023; Match 81.3%; QryMatch 83.7%; Pred. No. 2.96e-146;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;

Db 24 cdtpqthslgnrralllqgmgrispfscldkrdpfglpqeeefdqmfqktaqvsvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTMLLAQMRRISLSFSCIKDRDRDFGFPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfstedsaaewgsllkfstelyqqlnleacvigeqvmeetplmmedsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQTFNLFSSTKDSAAWDETLLDKFYELYQQLNDLEACVIGQGVGTETPLMKEDSILAV 119

Db 144 rkyfqrtilylierkyspcawevvraeimsrfsfstnlqlrrkd 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 120 RKYFQRITLYLIEKKYSPCAWEVWRAEIMRSFSLSTNLQESLSRKE 165

RESULT 13
ENTRY        IVH0A5 #type complete
TITLE        interferon alpha-5 precursor - human
ORGANISM     #formal_name Homo sapiens #common_name man
DATE         01-Sep-1981 #sequence_revision 01-Sep-1981 #text_change
              18-Nov-1994
ACCESSIONS   A60937; A01830
REFERENCE    A60937
#authors     Bartholomew, C.; Windass, J.D.
#journal     J. Interferon Res. (1989) 9:407-417
#title       Identification of a functional allele of a human
              interferon-alpha gene previously characterized as a
              pseudogene.
#accession   A60937
#molecule_type DNA
#residues    1-189 #label BAR
#note        this genomic sequence, SWTIII.1A, encodes a functional
              allele for alpha interferon at the locus pseudo-leIF-L
              that, in other allelic forms, contains a stop codon at
              the end of the signal sequence and is a pseudogene

REFERENCE    A93249
#authors     Goeddel, D.V.; Leung, D.W.; Dull, T.J.; Gross, M.; Lawn,
              R.M.; McCandless, R.; Seeburg, P.H.; Ullrich, A.;
              Yelverton, E.; Gray, P.W.
#journal     Nature (1981) 290:20-26
#title       The structure of eight distinct cloned human leukocyte
              interferon cDNAs.
#cross-references M01D:81148795
#accession   A01830
#molecule_type mRNA
```

```
#residues     1-189 #label GOE
#note         eight classes of interferon alpha clones were
              identified; this sequence is derived from class C
CLASSIFICATION #superfamily interferon alpha
FEATURE       1-23
SUMMARY       #domain signal sequence #status predicted #label SIG
              #length 189 #molecular-weight 21835 #checksum 2522

Db 2; Score 1017; Match 81.3%; QryMatch 83.2%; Pred. No. 3.03e-145;
Matches 135; Conservative 18; Mismatches 12; Indels 1; Gaps 1;

Db 24 cdtpqthslgnrralllqgmgrispfscldkrdhfrfpqeeefdqmfqktaqvsvlhem 83
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTMLLAQMRRISLSFSCIKDRDRDFGFPQEEF-GNQFQKAETIPVLHEM 59

Db 84 iqqtfnlfstedsaaewgsllkfstelyqqlnleacvigeqvmeetplmmedsilav 143
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQTFNLFSSTKDSAAWDETLLDKFYELYQQLNDLEACVIGQGVGTETPLMKEDSILAV 119

Db 144 rkyfqrtilylierkyspcawevvraeimsrfsfstnlqlrrkd 189
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 120 RKYFQRITLYLIEKKYSPCAWEVWRAEIMRSFSLSTNLQESLSRKE 165

RESULT 14
ENTRY        F25843 #type complete
TITLE        interferon alpha-J - human
ALTERNATE_NAMES human leukocyte interferon (IFN)
ORGANISM     #formal_name Homo sapiens #common_name man
DATE         16-Aug-1988 #sequence_revision 16-Aug-1988 #text_change
              27-Jan-1995
ACCESSIONS   F25843
REFERENCE    A91374
#authors     Ohara, O.; Teraoka, H.
#journal     FEBS Lett. (1987) 211:78-82
#title       Anomalous behavior of human leukocyte interferon subtypes on
              polyacrylamide gel electrophoresis in the presence of
              dodecyl sulfate.
#cross-references M01D:87105954
#accession   F25843
#molecule_type mRNA
#residues    1-167 #label OHA
#note        sequence not compared to nucleotide translation
              nucleotide sequence is not given
#note        nucleotide sequence is not given
CLASSIFICATION #superfamily interferon alpha
SUMMARY       #length 167 #molecular-weight 19737 #checksum 451

Db 4; Score 1012; Match 79.5%; QryMatch 82.8%; Pred. No. 2.10e-144;
Matches 132; Conservative 20; Mismatches 13; Indels 1; Gaps 1;

Db 2 cdtpqthslgnrralllqgmgrispfscldkrdhfrfpqeeefdqmfqktaqvsvlhem 61
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 1 CDLPQTHSLGSRRTMLLAQMRRISLSFSCIKDRDRDFGFPQEEF-GNQFQKAETIPVLHEM 59

Db 62 iqqtfnlfstedsaaewgsllkfstelyqqlnleacvigeqvmeetplmmedsilav 121
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 60 IQQTFNLFSSTKDSAAWDETLLDKFYELYQQLNDLEACVIGQGVGTETPLMKEDSILAV 119

Db 122 rkyfqrtilylierkyspcawevvraeimsrfsfstnlqlrrkd 167
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Qy 120 RKYFQRITLYLIEKKYSPCAWEVWRAEIMRSFSLSTNLQESLSRKE 165

RESULT 15
```

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ENTRY          IVRU18      #type complete
TITLE          interferon alpha-I-8 precursor - human
ALTERNATE_NAMES HuIFN-alpha-I-8; type I interferon
ORGANISM       Homo sapiens #common name man
DATE           28-Dec-1987 #sequence_revision 28-Dec-1987 #text_change
              18-Nov-1994
ACCESSIONS     D23753
REFERENCE      A92916
AUTHORS        Henco, K.; Brosius, J.; Fujisawa, A.; Fujisawa, J.I.; Haynes,
              J.R.; Hochstadt, J.; Kovacic, T.; Pasek, M.; Schambeck, A.;
              Schmid, J.; Todokoro, K.; Walchli, M.; Nagata, S.;
              Weissmann, C.
JOURNAL        J. Mol. Biol. (1985) 185:227-260
TITLE          Structural relationship of human interferon alpha genes and
              pseudogenes.
CROSS-REFERENCES MUID:86037205
ACCESSION      D23753
MOLECULE_TYPE  DNA
RESIDUES       1-189 ##label HEN
GENETICS
GENE           IFNA
MAP_POSITION   9p22-p13
CLASSIFICATION #superfamily interferon alpha
KEYWORDS       antiviral
FEATURE
1-23           #domain signal sequence #status predicted #label SIG\
24-189         #product interferon alpha-I-8 #label MAT\
24-122,52-162 #disulfide bonds #status predicted
SUMMARY        #length 189 #molecular-weight 21989 #checksum 1052

DB 2; Score 1012; Match 82.5%; OryMatch 82.8%; Pred. No. 2.10e-144;
Matches 137; Conservative 13; Mismatches 15; Indels 1; Gaps 1;

Db 24 cdllpctslgnrrtalillagarrispsfclkdrrhdfpqaefddkfgkagaisvlhem 83
QY 1 CDLPQTHSLGSRRTMLLAQMRRISLFSCLKDRDRDFGFPQEEFGN-QFQKAEIPVLHEM 59

Db 84 iqqtfnlfstkdssaalddetilldefyielddqldndlescvmqevqviesplmyedsilav 143
QY 60 IQQIFNLFSTKSSAAWDETLDDKFTELYQQINDLEACVIGGVGVTTPLMKEDSILAV 119

Db 144 rkyfqrtilylekkysscawevvraeimrfsislndqlrlkeke 189
QY 120 RKYFQRITLYLKEKYSKPCAMEVVRAEIMRSFSLTNLQESLRSKE 165

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Search completed: Tue Aug 29 17:05:11 1995
Job time : 23 secs.

PT O-glycosylated alpha-interferon - used for treatment of
 PT viral of tumour diseases
 PS Disclosure; Fig 6(A+B); 104pp; English.
 CC Plasmid pAD-CMV19 (6.1 kb) is incubated with HindIII and XbaI, then
 CC ligated with a modified cDNA fragment for human IFN-alpha2c. This
 CC fragment is obtd. from the known clone IF7 by PCR-modification of
 CC the 5'-noncoding region to replace it with the corresp. region from
 CC human beta-globulin mRNA. This modification significantly improves
 CC expression by increasing the efficiency of initiation of translation.
 CC The recombinant prod. is designated pAD19b-IFN.
 CC See also Q20731-43 and Q20522-26.
 SQ Sequence 639 BP; 171 A; 155 C; 152 G; 161 T;

DB 3; Score 495; Match 100.0%; QryMatch 100.0%; Pred. No. 5.68e-311;
 Matches 495; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 126 tgtgatcgtcctcaaacacagcctggtagcaggaggaacttgatcctctggcacag 185
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 1 TGTGATCTGCTCAACCCACAGCCTGGGTAGCAGGAGGACCTTGATGCTCTGGCACAG 60

Db 186 atgaggagaatctctttctctgttgaagcagacagctgacttggattccccag 245
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 61 ATGAGGAGATCTCTTTTCTGCTTGAAGGACAGACGTGATTTGGATTTCCCGAG 120

Db 246 gagagttggcaaccagttccaaaaggctgaaccatcctctcccatgagatgac 305
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 121 GAGGAGTTTGGCAACAGTTCAAAAGGCTGAACCCATCCTGTCTCCATGAGATGATC 180

Db 306 cagcagatcttcaatctctcagcacaaggactcatctgctgttgatgagaccctc 365
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 181 CAGCAGATCTTCAATCTCTTCAGCAAAAGGACTCATCTGCTTGGATGAGACCCCTC 240

Db 366 ctagacaattctacactgaactctaccagcagctgaatgacctggaacctgtgtgata 425
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 241 CTAGCAAAATTTACACTGAATCTTACCAGCAGCTGATGACCTTGAAGCCTGTGTGATA 300

Db 426 cagggggtgggggtgacagagactccccgatgaaggaggactccattctggctgtgagg 485
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 301 CAGGGGGTGGGGGTGACAGACTCCCTTGATGAAGGAGGACTCCATCTGGCTGTGAGG 360

Db 486 aaatcttccaaagaatacactctctatctgaagagaagaatacagccctgtgctagg 545
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 361 AAATACTTCCAAAGAATCACTCTATCTGAAAGAGAAATACAGCCCTTTGTCCTGG 420

Db 546 gaggtgtcagcagagaataatcagatctttttctttgtcaacaacttgaagaagt 605
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 421 GAGGTGTGACAGCAGAAATCATGATCTTTTCTTGTCAACAAACTTGCAAGAAAGT 480

Db 606 ttaagaagtaaggaa 620
 ||||||||||||||
 Qy 481 TTAGAGTAGGAA 495

RESULT 2
 ID N70528 standard; DNA; 501 BP.
 AC N70528;

DT 20-MAY-1991 (first entry)
 DE Sequence encoding IFN-alpha-2 (Arg).
 KW Hybrid alpha/omega interferon; antiviral; virucide; antitumour;
 KW cyostatic; ss.
 FH Key Location/Qualifiers
 FT CDS 1..501
 FT /*tag= a
 PN EP-236920-A.

PD 16-SEP-1987.
 PF 04-MAR-1987; 103030.
 PR 10-MAR-1986; DE-607835.
 PA (BOEH) BOEHRINGER INGELHEIM.
 PI Hauptmann R, Swetly P, Meindl P, Gunther A, Falkner E,
 PI Bodo G, Maurer-Fogy I;
 DR WPI; 87-258223/37.
 DR P-PSDB; P70329.

PT New hybrid interferon prods. useful as antiviral agents - contg.
 PT alpha and omega interferon fragments
 PS Disclosure; pp4-6; 65pp; German.

CC Hybrid interferons comprising a fragment of an alpha-interferon and
 CC a fragment of an omega-interferon, and their N-terminal Met or
 CC N-formyl-Met derivs. and N-glycosylated derivs., are new. The hybrid
 CC interferons are useful as antiviral and antitumour agents. Both IFN-
 CC alpha-2(Arg) and omega-1-interferon has a 191-196 BgIII restriction
 CC site (see N70528 and N70529). In addition, IFN-alpha-2(Arg) has a
 CC 451-456 BgIII site.
 SQ Sequence 501 BP; 141 A; 116 C; 123 G; 121 T;

DB 2; Score 495; Match 100.0%; QryMatch 100.0%; Pred. No. 5.68e-311;
 Matches 495; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 4 tgtgatcgtcctcaaacacagcctggtagcaggaggaacttgatcctctggcacag 63
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 1 TGTGATCTGCTCAACCCACAGCCTGGGTAGCAGGAGGACCTTGATGCTCTGGCACAG 60

Db 64 atgaggagaatctctcttctctgttgaagcagacagctgacttggattccccag 123
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 61 ATGAGGAGATCTCTTTTCTGCTTGAAGGACAGACGTGATTTGGATTTCCCGAG 120

Db 124 gaggagttggcaaccagttccaaaaggctgaaccatcctctcccatgagatgac 183
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 121 GAGGAGTTTGGCAACAGTTCAAAAGGCTGAACCCATCCTGTCTCCATGAGATGATC 180

Db 184 cagcagatcttcaatctctcagcacaaggactcatctgctgttgatgagaccctc 243
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 181 CAGCAGATCTTCAATCTCTTCAGCAAAAGGACTCATCTGCTTGGATGAGACCCCTC 240

Db 244 ctagacaattctacactgaactctaccagcagctgaatgacctggaacctgtgtgata 303
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 241 CTAGCAAAATTTACACTGAATCTTACCAGCAGCTGATGACCTTGAAGCCTGTGTGATA 300

Db 304 cagggggtgggggtgacagagactccccgatgaaggaggactccattctggctgtgagg 363
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 301 CAGGGGGTGGGGGTGACAGACTCCCTTGATGAAGGAGGACTCCATCTGGCTGTGAGG 360

Db 364 aaatcttccaaagaatacactctctatctgaagagaagaatacagccctgtgctagg 423
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 361 AAATACTTCCAAAGAATCACTCTATCTGAAAGAGAAATACAGCCCTTTGTCCTGG 420

Db 424 gaggtgtcagcagagaataatcagatctttttctttgtcaacaacttgaagaagt 483
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Qy 421 GAGGTGTGACAGCAGAAATCATGATCTTTTCTTGTCAACAAACTTGCAAGAAAGT 480

Db 484 ttaagaagtaaggaa 498
 ||||||||||||||
 Qy 481 TTAGAGTAGGAA 495

RESULT 3
 ID Q20764 standard; DNA; 639 BP.
 AC Q20764;
 DT 21-APR-1992 (first entry)

DE	Human IFNalpha 2C gene from pAD19B-IFN.		
KW	Interferon; O-glycosylation; ss.		
OS	Homo sapiens.		
EH	Key		
FT	Location/Qualifiers		
CS	57..623		
FT	/*tag= a		
FT	/label= huIFNalpha		
FT	sig_peptide 57..125		
FT	/*tag= b		
FT	mat_peptide 126..623		
FT	/*tag= c		
PN	DE4021917-A.		
PD	16-JAN-1992.		
PD	10-JUL-1990; 021917.		
PR	10-JUL-1990; DE-021917.		
PA	(BOEH) BOEHRINGER INGELHEI.		
PI	Himmler A, Adolf G;		
PI	WPI; 92-025485/04.		
DR	p-PSDB; R20549.		
PT	O-glycosylated alpha-interferon, used as medicament - isolated		
PT	following secretion into conditioned medium of mammalian cells		
PT	contg. a suitable expression plasmid		
PS	Disclosure; Fig 6; 24pp; German.		
CC	Human embryonic kidney cells transformed with the human IFNalpha		
CC	2C gene, contd. in pAD19B-IFN, are grown under suitable conditions.		
CC	O-glycosylated IFNalpha can then be isolated and purified from the		
CC	tissue culture supernatant.		
CC	See also Q20764-66 and Q22517-29.		
CC	Sequence 639 BP; 171 A; 155 C; 152 G; 161 T;		
DB	3; Score 495; Match 100.0%; QryMatch 100.0%; Pred. No. 5.68e-311;		
DB	Matches 495; Conservative 0; Mismatches 0; Indels 0; Gaps 0;		
Db	126	tgtgatctgctcaaacccacagcctgggtagcaggagaccttgatgctcctggcaag	185
Qy	1	TGTGATCGCTCAAACCCACAGCTGGTAGCAGGAGCACTTGATGCTCTGGCACAG	60
Db	186	atgaggagaatctctcttctcgtgtgaagacagacgtgacttggattccccc	245
Qy	61	ATGAGAGATCTCTCTCTCTGCTTGAAGCAGACGTGACTTTGGATTGCCAG	120
Db	246	gaggagtttggcaaccagtccaaaaggctgaaacccatccctgctccatgagatgac	305
Qy	121	GAGGAGTTTGGCAACCCAGTTGCCAAAGGCTCAAAACCATCCCTGCTCTCATGAGATGATC	180
Db	306	cagcagatcttcaatctctcagcacaaaggactcatctgctgttggatgagaccctc	365
Qy	181	CAGCAGATCTTCAATCTTTCAGCACAAAGGACTCATCTGCTGTTGGATGAGACCTC	240
Db	366	ctagacaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata	425
Qy	241	CTAGACAAATTCATGACTGAACCTTACCAGCAGCTGAATGACCTGGAGCCTGTGTGATA	300
Db	426	cagggggtgggggtgacagagactccctgatgaaggaggactccattcgtggtgtgagg	485
Qy	301	CAGGGGGTGGGGGTGACAGAGACTCCCTCTGATGAGGAGACTCCATTCTGCCTGTGAGG	360
Db	486	aaatacttccaaaagatcaactctctatctgaaagagaagaatacacgaccttgcctgg	545
Qy	361	AAATACTTCCAAAGAAACACTCTCTTATCTGAAGACAGAAATACAGCCCTGTGCTGG	420
Db	546	gaagttgtgcagacagaataatcatgaactcttttcttcttgcacaaacttgcagaagat	605
Qy	421	CAGSTTTGTGACAGCAGAAATCATGAGATCTTTTCTTCTGCACAAACTTGCAAAGAT	480

Db	606	ttaagaagtaaggaa	620
Qy	481	TTAAGAAGTAAGGAA	495

RESULT	4
ID	N50272 standard; DNA; 589 BP.
AC	N50272;
DT	24-NOV-1991 (first entry)
DE	DNA encoding interferon alpha-2 .
KW	Interferon alpha-2; as DNA; hybrid DNA sequence; crossover region.
FM	Key
FW	Location/Qualifiers
FT	CDS 1..498
FT	/*tag= a 184..194
FT	/*tag= b
FT	/note= "crossover region A"
FT	misc_feature 258..282
FT	/*tag= c
FT	/note= "crossover region B"
FT	misc_feature 258..299
FT	/*tag= d
FT	/note= "crossover region C"
FT	misc_feature 258..315
FT	/*tag= e
FT	/note= "crossover region D"
FT	misc_feature 322..336
FT	/*tag= f
FT	/note= "crossover region E"
FT	misc_feature 338..348
FT	/*tag= g
FT	/note= "crossover region F"
FT	misc_feature 372..391
FT	/*tag= h
FT	/note= "crossover region G"
FT	misc_feature 393..450
FT	/*tag= i
FT	/note= "crossover region H"
FT	misc_feature 453..458
FT	/*tag= j
FT	/note= "crossover region I"
FT	misc_feature 459..479
FT	/*tag= k
FT	/note= "crossover region J"
FT	misc_feature 514..519
FT	/*tag= l
FT	/note= "crossover region K"
FT	EP-141484-A.
PN	15-MAY-1985.
PD	05-JUN-1984; 303787.
PF	10-JUN-1983; GB-015980.
PR	(B10J) Biogen NV.
PA	Weissmann C, Weber H.
PI	WPI; 85-117654/20.
DR	P-P5DB; P50228.
DR	NEW hybrid DNA sequences and hybrid polypeptide(s) - useful in produ.
PT	of interferon(s), lymphokines, viral antigens, etc.
PT	Disclosure; Fig. 6A-C; 47pp; English.
PS	The DNA encodes interferon alpha-2. The DNA may be fused to a second
CC	coding sequence, eg for animal or human alpha, beta or gamma-
CC	interferons, lymphokines, foot-and-mouth disease antigens, to form a
CC	hybrid DNA. The DNA must be fused to the second DNA sequence in the
CC	same reading frame to maintain a constant reading frame through a

CC crossover region common to both sequences. The hybrid sequences are
CC obtd. without the need for chance availability of restriction sites
CC to be combined. Sequential deletions to give prods. with modified
CC properties, activity and specificity are reliable.
SQ Sequence 589 BP; 165 A; 135 C; 135 G; 154 T;

DB 3; Score 493; Match 99.8%; QryMatch 99.6%; Pred. No. 1.31e-309;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 1 tgtgatctgctcaaacaccacagctggtagcaggaggaacattgatctctctggcacag 60
Qy 1 TGTGATCTGGCTCAAAACCCACAGCCTGGGTAGCAGGAGGACCTTGATGCTCTGGCACAG 60

Db 61 atgaggagaatctctctttctctgcttgaaggacagacatgactttggattccccag 120
Qy 61 ATGAGGAGATCTCTCTTTCTCTGCTTGAAGCAGACAGCTGACTTTGGATTTCGCCAG 120

Db 121 gagggattggcaacacagttccaaaggctgaaccatccctgtcccatgagatgac 180
Qy 121 GAGGATTGGCAACAGTTCCAAAGGCTGAAACCATCCCTGTCTCCATGACATGATC 180

Db 181 cagcagatctcaatctctcagcaaaaggactcaatctgctgttggatgagaccctc 240
Qy 181 CAGCAGATCTTCAATCTCTCAGCAAAAGGACTCATCTGCTGCTTGGGATCAGACCCTC 240

Db 241 ctagacaaattctacactgaactctaccagcagctgaatgacctggaacctgtgtgata 300
Qy 241 CTAGACAAATTTCTACACTGAACCTTACCAGCAGCTGAATGACCTGGAGCCTGTGTGATA 300

Db 301 caggggtgggggtgacagagactccctgatgaaggaggactccattctggtgtgagg 360
Qy 301 CAGGGGTGGGGGTGACAGAGACTCCCTGTGATGAGGAGGACTCCATCTGGCTGTGAGG 360

Db 420 aatacttccaaagaatcaactctctatctgaagaagaataacagcccttgtgcctgg 420
Qy 420 AATACTTCCAAAGAATCACTCTCTATCTGAAAGAGAGAAATACAGCCCTTGTGCTGG 420

Db 480 gaggtgtcagcagagaataatcagatcttttttttttttttttttttttttttttttt 480
Qy 421 GAGGTTGTGAGCAGAGAAATCATGAGATCTTTTCTTTTGTCACAAACTTGCAGAAACT 480

Db 481 ttaagaagtaaggaa 495
Qy 481 TTAAGAGTAAGGAA 495

RESULT 5
ID N60399 standard; DNA; 1863 BP.
AC N60399;
DT 25-JUN-1991 (first entry)
DE Sequence of the promoter region 22 of the alcA gene, the synthetic
DE signal peptide coding region 68 and the coding region 60 coding for
DE human interferon alpha-2 in pALCALISFN.
KW Filamentous fungi promoter; ds.
FH Key Location/Qualifiers
FT misc feature 29
FT /*tag= a
FT /note= * = base 1200*
FT sig_peptide 878..922
FT /*tag= b
FT CDS 923..975
FT /*tag= c
FT mat_peptide 976..1474
FT /*tag= d

PN W08606097-A.
PD 23-OCT-1986.
PF 14-APR-1986; G00209.
PR 15-APR-1985; CA-479135.
PR 20-DEC-1985; US-811404.
PA (ALIE-) ALIELIX INC.
PI Gwynne DJ, Buxton F, Pickett M, Davies R, Scazzocchio C;
DR WPI; 86-291664/44.
PT DNA construct for use in filamentous fungi - comprising promoter
PT operative in filamentous fungi to promote transcription of coding
PT region
PS Disclosure; Fig 11; 75pp; English.
CC In the constructs of the invention, the promoter region naturally
CC associated with the alcohol dehydrogenase I (alcA) gene and the
CC aldehyde dehydrogenase (aldA) gene of A. nidulans or naturally
CC associated with the glucoamylase gene in Aspergillus niger may be
CC used. The DNA construct may contain a promoter region in operative
CC association with a signal peptide coding region. The promoter/signal
CC construct is suitably provided with a flanking restriction site to
CC allow precise coupling of the protein coding region to the signal
CC peptide coding region.
SQ Sequence 1863 BP; 516 A; 425 C; 422 G; 500 T;

DB 2; Score 493; Match 99.8%; QryMatch 99.6%; Pred. No. 1.31e-309;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 977 tgtgatctgctcaaacaccacagctggtagcaggaggaacattgatctctctggcacag 1036
Qy 1 TGTGATCTGGCTCAAAACCCACAGCCTGGGTAGCAGGAGGACCTTGATGCTCTGGCACAG 60

Db 1037 atgaggagaatctctctttctctgcttgaaggacagacatgactttggattccccag 1096
Qy 61 ATGAGGAGATCTCTCTTTCTCTGCTTGAAGCAGACAGCTGACTTTGGATTTCGCCAG 120

Db 1097 gagggattggcaacacagttccaaaggctgaaccatccctgtcccatgagatgac 1156
Qy 121 GAGGATTGGCAACAGTTCCAAAGGCTGAAACCATCCCTGTCTCCATGACATGATC 180

Db 1157 cagcagatctcaatctctcagcaaaaggactcaatctgctgttggatgagaccctc 1216
Qy 181 CAGCAGATCTTCAATCTCTTTCAGCACAAGGACTCATCTGCTGCTTGGGATCAGACCCTC 240

Db 1217 ctagacaaattctacactgaactctaccagcagctgaatgacctggaacctgtgtgata 1276
Qy 241 CTAGACAAATTTCTACACTGAACCTTACCAGCAGCTGAATGACCTGCAAGCCTGTGTGATA 300

Db 1277 caggggtgggggtgacagagactccctgatgaaggaggactccattctggtgtgagg 1336
Qy 301 CAGGGGTGGGGGTGACAGAGACTCCCTGTGATGAGGAGGACTCCATCTGGCTGTGAGG 360

Db 1337 aatacttccaaagaatcaactctctatctgaagaagaataacagcccttgtgcctgg 1396
Qy 361 AATACTTCCAAAGAATCACTCTCTATCTGAAAGAGAGAAATACAGCCCTTGTGCTGG 420

Db 1397 gaggtgtcagcagagaataatcagatcttttttttttttttttttttttttttttttt 1456
Qy 421 GAGGTTGTGAGCAGAGAAATCATGAGATCTTTTCTTTTGTCACAAACTTGCAGAAACT 480

Db 1457 ttaagaagtaaggaa 1471
Qy 481 TTAAGAGTAAGGAA 495

RESULT 6

ID	N10011	standard; DNA; 744 BP.
DT	AC	
DC	13-AUG-1992	(first entry)
DE	Sequence of the Hif-II-206 fragment of culture HcIF-G encoding	
DE	interferon (IFN) -alpha-2 and signal sequence.	
KW	Anti-viral agent; anti-cancer agent; therapy; ss.	
OS	Homo sapiens.	
FT	Key	Location/Qualifiers
FT	sig peptide	2..52
FT	/*tag= a	
FT	mat_peptide	53..550
FT	/*tag= b	
PN	EP--32134-A.	
PD	15-JUL-1981.	300050.
PD	07-JAN-1981;	300050.
PR	08-JAN-1980;	EP--3000709.
PR	03-APR-1980;	EP--301100.
PR	02-OCT-1980;	GB--031737.
PA	(BIOJ) BIOGEN NV.	
PI	Weissmann C;	
DR	WPI; 81-53697D/30.	
DR	P-PSDB; P10018.	
PT	DNA sequences coding for interferon-like polypeptide(s) - useful	
PT	as antiviral or antitumour agents	
PS	Claim 6; Fig 12-16; 136pp; English.	
CC	The inventors claim DNA sequences coding for interferon-like	
CC	polypeptide(s). The DNA sequences pref. encode IFN-alpha type 1, 2,	
CC	4a and 4b. Pref. DNA sequences which hybridise to the inserts of Z-	
CC	pBR322 (Pst)/HcIF-4c, Z-pBR322 (Pst)/HcIF-2h, Z-pBR322 (Pst)/HcIF-SN35,	
CC	Z-pBR322 (Pst)/HcIF-SN42 and ZpK287 (Pst)/HcIF-2h-AH6 comprise	
CC	Z-pBR322 (Pst)/HcIF-II-206, Z-pBR322 (Pst)/HcIF-SN35-AH6, and	
CC	Hif-chrl, -3, -12, -13, -16-1, -26, -30, -35, -19 and -27. Pref.	
CC	recombinant DNA molecules are C8-IFN-alpha-1, C8-IFN-alpha-2,	
CC	IAC-AUG(alpha-2) and beta-lac-AUG(alpha-2). A comparison of the	
CC	nucleotide sequence of the coding region of HcIF-35HB-alpha and	
CC	that of Hif-2h (coding region) reveals that they are identical.	
CC	Sequence 744 BP; 202 A; 171 G; 169 G; 202 T;	
SQ		
DB	4;	Score 493; Match 99.8%; QryMatch 99.6%; Pred. No. 1.31e-309;
Matches	494;	Conservative 0; Mismatches 1; Indels 0; Gaps 0;
Db	53	tgtgatctgcctcaaaaccacagcctgggtagcaggaggaccttgatgctctggcacag 112
Qy	1	TGTGATCGCCTCAAAACCACAGCTGGGTAGCAGGAGACCTTGATGCTCTGGCACAG 60
Db	113	atgaggagaatctcttttctcgtctgaaggacagacatgaacttggattccccag 172
Qy	61	ATGAGGAGAAATCTCTTTTCTCTGCTTGAAGGACAGAGCTGACTTTGGATTTCCCCAG 120
Db	173	gaggagttggcaaccagttccaaaaggctgaaccatccctgtccctcatgagatgac 232
Qy	121	GAGGAGTTTGGCAACCAGTTCCAAAAGGCTGAAACCATCCCTGCTCCTCCATGAGATGATC 180
Db	233	cacgagatcttcaatctcttcagcacaaaggactcatctgctgcttgggatgagaccc 292
Qy	181	CACGAGATCTTCAATCTCTTTCAGACAAAGAGACTCATCTGCTGCTTGGATGAGACCCCTC 240
Db	293	ctagacaaattctacactgaactctaccagagctgaatgacctggaagcctgtgtgata 352
Qy	241	CTAGACAAATTCTACACTGACTCTTACACGAGCTGAATGACCTGGAAGCCCTGTGTGATA 300
Db	353	cagggggtgggggtgacagagactccccctgatgaaggaggactccattcctggctgtgaag 412
Qy	301	CAGGGGTGGGGGTGACAGAGCTCCCTCATCAAGAGAGACTCCATTCTGGCTGTGAGG 360

Db	413	aaatactccaaagaatacactctctatctgaagagaagaataacagaccttctgtgacctgg	472
Qy	361	AAATACTTCCAAAGAATCACTCTCTATCTCAAAGAGAAGAAATACAGCCCTTTGTGCTGG	420
Db	473	gaggtgttcagcagcagaaatcatgatctcttttctttgtcaacaaactgcagaagaagt	532
Qy	421	GAGGTTCTCAGCAGCAAAATCATCATGATCTTTCTTTGTCACAAACTTCCRAAGAACT	480
Db	533	ttaagaagtaaggaa	547
Qy	481	TTAAGAGTAAGGAA	495
RESULT 7			
ID	Q47153 standard; cDNA; 647 BP.		
AC	Q47153;		
DT	21-JAN-1994 (first entry)		
DE	Natural human interferon-alpha cDNA.		
KW	IFN-alpha; hIFN-alpha; ss.		
OS	Homo sapiens.		
Key	Location/Qualifiers		
FT	CDS 1..504		
FT	/*tag= a		
PN	EP-553494-A.		
PD	04-AUG-1993.		
PF	29-DEC-1992; 122084.		
PR	31-DEC-1991; KR-025878.		
PR	31-DEC-1991; KR-025879.		
PR	28-JAN-1992; KR-001155.		
PA	(LUCK-) LUCKY LTD.		
PI	Bae TO, Chang HJ, Cho JM, Park SJ, Park YW.		
DR	P-PSDB; R38793.		
PT	Recombinant human alpha interferon and corresp. gene - for		
PT	efficient expression in yeast, and purifcn. process		
PS	Disclosure; fig 1B; 30pp; English.		
CC	The sequence is that of natural human interferon-alpha cDNA.		
SQ	Sequence 647 BP; 174 A; 154 C; 151 G; 168 T;		
DB	7;	Score 491; Match 99.6%; QryMatch 99.2%; Pred. No. 3.03e-308;	
Matches	493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;		
Db	76	tgtgatctgctcaaacccagacctgggtagcagaggaccttgatgctcgtggcacag	135
Qy	1	TGTATCTGCCTCAAACCCAGACGGCTGGGTACGAGGAGGACCTTGATGCTCTCTGGCACAG	60
Db	136	atgaggaatactctctctcctgcttgaaggacagacatgactttggattccccag	195
Qy	61	ATGAGGAAATCTCTCTCTTTCTCTCTTTGAAAGACAGACGTGACTTTGGATTTCCCCAG	120
Db	196	gaggagtttggcaaccagttccaaaagcgtgaaccatccctgctcccatgagatgac	255
Qy	121	GAGGAGTTTGGCAACCAAGTTCCAAAAGGCTGAAACCATCCCTGCTCTCATGATGATC	180
Db	256	cagcagatctcaatctcttcagcaaaaggactcatctgctgcttgggatgagacccctc	315
Qy	181	CAGCAGATCTTCAATCTCTTTCAGCAAAAGGACTCATCTGCTTGGATGAGACCCCTC	240
Db	316	ctagacaattctacactgaactctaccagcagctgaatgaactggaaagcctgtgtgata	375
Qy	241	CTAGACAATTCTACACTGACTCTACGACAGCTGAATGACCTGGAGGCTGTGTGATA	300
Db	376	cauggggtgggggtgacacgaactcccctgatgaaggaggactccattcctggctgtgagg	435

- QY 301 CAGGGGTGGGGTGACAGACTCCCTGATGAAGGAGACTCCATTCTGGCTCTGAGG 360
|||||
Db 436 aaatacttccaaagaatcaactctctatctgaagagaagaatacacagccctgtgctgg 495
|||||
QY 361 AATACTTCCAAAGAATCACTCTCTATCTGAAGACAGAGAAATACAGCCCTGTGTGCTGG 420
|||||
Db 496 gaggtgtcagacgaagaatcatgagatctttttcttctcaacaacttgcagaagaagt 555
|||||
QY 421 GAGTTGTCTGACGACGAAATCATGAGTCTTTTCTTCTCAACAACTTGCAGAAAGT 480
|||||
Db 556 ttaagaagtaaggaa 570
|||||
QY 481 TTAAGAAGTAAGGAA 495

RESULT 8.

ID N20090 standard; cDNA; 958 BP.
AC N20090;
DT 10-AUG-1992 (first entry)
DE Sequence of leukocyte interferon LeIF A cDNA.
KW Viral infection; therapy; malignancy; ss.
OS Homo sapiens.
FH Key Location/Qualifiers
FT CDS 60..626
FT /tag= a
PN GB2079291-A.
PD 20-JAN-1982.
PF 01-JUL-1981; 120279.
PR 01-JUL-1980; US-164986.
PR 08-SEP-1980; US-184909.
PR 10-NOV-1980; US-205578.
PR 21-APR-1981; US-256204.
PA (HOFF) HOFFMANN-LA ROCHE AG.
PA (GENE-) GENENTECH INC.
PI Goeddel DYN, Pestka S;
DR WPI; 82-04460E/03.
DR P-PSDB; P20103.
PT Mature human leukocyte interferon polypeptide(s) - prepd. from
PT microbes transformed with appropriate DNA sequences
PS Claim 34; Fig 3; 20pp; English.
CC The inventors claim a polypeptide comprising the AA sequence of a
CC mature human LeIF and a DNA sequence encoding it. LeIF A-D, F, H-J
CC and encoding DNA are specifically claimed. They are natural allelic
CC variations. LeIF is isolated from the leukocytes of humans with
CC chronic myelogenous leukaemia, induced to produce interferon with
CC Sendai or Newcastle disease virus; esp. the cell line KG-1.
SQ Sequence 958 BP; 266 A; 211 C; 193 G; 288 T;

DB 4; Score 491; Match 99.6%; OryMatch 99.2%; Pred. No. 3.03e-308;
Matches 493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Db 130 tttgatctgcttcaaacacagcctgggtagcagagagaccttgatgctctggcacag 189
|||||
QY 1 TGTGATCTGGCTCAAAACCCACAGCCCTGGGTAGCAGGAGGACCTTGTGCTCGGCACAG 60
|||||
Db 190 atgaggaatactctcttttctctgttgaaggacagacatgaacttgatttcccccag 249
|||||
QY 61 ATGAGGAAATCTCTTTTCTCTCTCTTGAAGGACAGACGCTGACTTTTGGATTTCGCCAG 120
|||||
Db 250 gagggagttggcaacagttccaaaaggctgaaccatccctgtctctcatgagatgac 309
|||||
QY 121 GAGGAGTTGGCAACAGCTTCCRAAGGCTGMAACCATCCCTGTCTCCATGATGATC 180

Db 310 cagcagatcttcaatctctcagcacaaaggactcatctgtctgttgggatgagaccctc 369
|||||
QY 181 CAGCAGATCTTCAATCTCTTCAGCACAAAGGACTCATCTGTCTGCTTGGGATCAGACCCTC 240
|||||
Db 370 ctgacaaattctacactgaactctaccagcagctgaatgacctggaagcctgtgtgata 429
|||||
QY 241 CTAGACAAATTTACACTGAACCTTACAGCAGCTCAATGACCTTGGAGCCCTGTGTGATA 300
|||||
Db 430 cagggggtgggggtgacagagactccctgatgaaggagagactccattctggtgtgagg 489
|||||
QY 301 CAGGGGTGGGGGTGACAGACTCCCTGATGAAGGAGACTCCATTCTGCTGTGAGG 360
|||||
Db 490 aaatacttccaaagaatcaactctctatctgaagagaagaatacacagccctgtgctgg 549
|||||
QY 361 AATACTTCCAAAGAATCATCTCTATCTGAAGACAGAGAAATACAGCCCTTGTGCTGG 420
|||||
Db 550 gaggtgtcagacgaagaatcatgagatctttttcttctcaacaacttgcagaagaagt 609
|||||
QY 421 GAGTTGTCTGACGACGAAATCATGAGTCTTTTCTTCTCAACAACTTGCAGAAAGT 480
|||||
Db 610 ttaagaagtaaggaa 624
|||||
QY 481 TTAAGAAGTAAGGAA 495

RESULT 9

ID N30062 standard; DNA; 941 BP.
AC N30062;
DT 14-JUN-1992 (first entry)
DE Sequence of a modified BamHI human interferon-alpha gene fragment.
KW Yeast expression vector; Saccharomyces cerevisiae; promoter;
KW glycolytic enzyme; phosphoglycerate kinase; ss.
OS Homo sapiens.

FH Key Location/Qualifiers

FT CDS 7..534
FT /tag= a
PN EP--/73635-A.
PD 09-MAR-1983.
PF 17-AUG-1982; 408826.
PR 25-AUG-1981; GB-025934.
PR 23-MAR-1982; GB-008422.
PR 16-JUN-1982; GB-017496.
PA (KING/) KINGSMAN A J.
PA (CELL-) CELLTECH LTD.
PI Kingman S M; Kingman A J.
DR WPI; 83-25586K/11.
DR P-PSDB; P30163.
PT Yeast expression vector for transforming yeasts - useful in
PT economic prodn. of polypeptide(s) esp. human interferon-alpha
PS Example; Fig 16; 45pp; English.
CC The inventors claim a yeast expression vector comprising a yeast
CC selective marker, a yeast replication origin and a yeast promoter
CC positioned relative to a unique restriction site. The yeast
CC promoter pref. comprises at least part of the 5' region of a gene
CC coding for glycolytic enzyme, esp. of the yeast PGK gene located up-
CC stream of the unique restriction site and at least part of the 3'
CC region of the PGK gene located downstream of the site. The vector
CC is used to express a polypeptide, eg. human interferon-alpha.
SQ Sequence 941 BP; 315 A; 184 C; 179 G; 263 T;

DB 3; Score 491; Match 99.5%; OryMatch 99.2%; Pred. No. 3.03e-308;
Matches 493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Db 37 tttgatctgcttcaaacacagcctgggtagcagagagaccttgatgctctctggcacag 96

```
Qy 1 TGTGATCGCTCAAAACCCACAGCGCTGGGTAGCAGGAGGACCTTGATGCTCCTGGCAG 60
|||||
Db 97 atgagaaatctctcttctctctctctctctctctctctctctctctctctctctctctccag 156
|||||
Qy 61 ATGAGAGAGATCTCTCTTTCTCTGCTGCTGAAGGACAGAGCTGACTTTGGATTTCCCGAG 120
|||||
Db 157 gagaggttggcaaccagttccaaaaggctgaaaccatccctgtctccctccatgagatgac 216
|||||
Qy 121 GAGGAGTTTGGCAACACAGTTCCAAAAGGCTGAAACCATCCCTGCTCCATGAGATGATC 180
|||||
Db 217 cagcagatcttcaatctcttcagcacaagaagcactcatctgctgtcttgagataagaccctc 276
|||||
Qy 181 CAGCAGATCTTCAATCTCTTCCAGCAAAAGGACTCATCTGCTGCTGGGATGAGACCCCTC 240
|||||
Db 277 ctagacaaatctacactgaactctaccagcagctgaatgaactggaagcctgtgtgata 336
|||||
Qy 241 CTAGACAAATTTACACTGAACTCTACAGCAGCTGAATGACCTGGAAGCCTGTGTGATA 300
|||||
Db 337 cagggggtgggggtgacagagactccctgatgaaggaggaactccattctggtgtgagg 396
|||||
Qy 301 CAGGGGTGGGGGTGACAGACTCCCTCTGATGAAGGAGGACTCCATTTCTGGCTGTGAGG 360
|||||
Db 397 aaatacttccaaagaatcactctctatctgaagaagaagaataacagccctgtgcctgg 456
|||||
Qy 361 AAATACTTCCAAAGATCACTCTCTATCTGAAGAGAAAGAAATACAGCCCTTGTGCCTGG 420
|||||
Db 457 gaggtgtcagagcagaataatcatgagatcttttctgtcaacaactgcaagaagt 516
|||||
Qy 421 GAGGTGTCAGAGCAAAATCATGAGATCTTTTCTTTCTTCTCAACAACTTGCAACAAAGT 480
|||||
```

RESULT 10
ID N40013 standard; DNA; 503 BP.

AC N40013;
DT 30-NOV-1991 (first entry)
DE DNA encoding recombinant interferon-alpha A.
KM Recombinant interferon-alpha A; ss DNA; antiviral.

FH Key Location/Qualifiers
FT CDS 6

FT /*tag= a
FT misc feature 12..503

FT /*tag= b

FT /note= "claimed sequence"

PN EP-128467-A.

PD 19-DEC-1984.

PF 30-MAY-1984; 106214.

PR 01-JUN-1983; US-499964.

PA (HOFF) F Hoffmann-La Roche & Co.

PI DeChiara TM, Tarnowski SJ Jr.

DR WPI; 84-313909/51.

DR P-PSDB; P40022.

PT New antiviral interferon polypeptide(s) free from oligomers - with
PT cysteine residues replaced by other amino acid residues.

PS Disclosure; Fig. 1; 46pp; English.

CC The DNA encodes recombinant interferon-alpha A (rIFN alpha). In this
CC protein, Cys 1 may be replaced by a glycine residue, and Cys 98,

CC 99 or 100 may be replaced by Ser. These polypeptides have antiviral
CC activity, but unlike prior interferons they are free from

CC oligomers, other than dimers, and they pref. consist of stable

CC monomers only.
SQ Sequence 503 BP; 144 A; 117 C; 120 G; 122 T;

DB 3; Score 491; Match 99.6%; QryMatch 99.2%; Pred. No. 3.03e-308;
Matches 493; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Db 9 tgtgactgctctcaaacccacagcctgggtagcagaggaggaacttgatgctctctggcacag 68
|||||

Qy 1 TGTGATCGCTCAAAACCCACAGCGCTGGGTAGCAGGAGGACCTTGATGCTCCTGGCAG 60
|||||

Db 69 atgagaaatctctcttctctctgcttgaaggacagacatgactttggatttcccccag 128
|||||

Qy 61 ATGAGAGAGATCTCTCTTTCTCTGCTTGAAGGACAGAGCTGACTTTGGATTTCCCGAG 120
|||||

Db 129 gaggaggttggcaaccagttccaaaaggctgaaaccatccctgtctccctccatgagatgac 188
|||||

Qy 121 GAGGAGTTTGGCAACACAGTTCCAAAAGGCTGAAACCATCCCTGCTCCATGAGATGATC 180
|||||

Db 189 cagcagatcttcaatctcttcagcacaagaagcactcatctgctgttggaatgagaccctc 248
|||||

Qy 181 CAGCAGATCTTCAATCTCTTCCAGCAAAAGGACTCATCTGCTGCTGGGATGAGACCCCTC 240
|||||

Db 249 ctagacaaatctacactgaactctaccagcagctgaatgaactggaagcctgtgtgata 308
|||||

Qy 241 CTAGACAAATTTACACTGAACTCTACAGCAGCTGAATGACCTGGAAGCCTGTGTGATA 300
|||||

Db 309 cagggggtgggggtgacagagactccctgatgaaggaggaactccattctggtgtgagg 368
|||||

Qy 301 CAGGGGTGGGGGTGACAGACTCCCTCTGATGAAGGAGGACTCCATTTCTGGCTGTGAGG 360
|||||

Db 369 aaatacttccaaagaatcactctctatctgaagaagaagaataacagccctgtgcctgg 428
|||||

Qy 361 AAATACTTCCAAAGATCACTCTCTATCTGAAGAGAAAGAAATACAGCCCTTGTGCCTGG 420
|||||

Db 429 gaggtgtcagagcagaataatcatgagatcttttctgtcaacaactgcaagaagt 488
|||||

Qy 421 GAGGTGTCAGAGCAAAATCATGAGATCTTTTCTTTCTTCTCAACAACTTGCAACAAAGT 480
|||||

Db 489 ttaagaagtaaggaa 503
|||||

Qy 481 TTAAGAAGTAAGGAA 495

RESULT 11
ID Q04744 standard; DNA; 573 BP.
AC Q04744;
DT 11-OCT-1990 (first entry)
DE Sequence encoding hybrid Ru-IFN alpha A/gamma.
KM Ru-IFN; interferon; tumour; cancer; ds.
OS Homo sapiens.

FH Key Location/Qualifiers
FT CDS 1..546

FT /*tag= a

FN EP-372707-A.

PD 13-JUN-1990.

PF 27-OCT-1989; 311108.

PR 28-OCT-1988; US-264271.

PA (PEST/) Pestka S.

PI Pestka S;

DR WPI; 90-180507/24.

DR P-PSDB; R05400.

PT Phosphorylated modified proteins, including modified interferon(s) -
PT used in diagnostic and therapeutic applications. eg.

PT pharmacokinetic studies and tumour treatment.

Qy 361 AATATCTTCCAAAGAACTACTCTCTATCTGAAAGACAGAAATACAGCCCTTGTGCGCTGG 420

Db 433 gaggtggcagacgaagaatcatgagatcttttctttgtcaacaacttgcagaagaagt 492
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 421 GAGGTGTGACAGCAGAAATCATGAGATCTTTTCTTCTGCAACAACCTTGCAAGAACT 480

Db 493 ttaagaagtaaggaa 507
||||| ||||||| |||||||

Qy 481 TTAAGAGTAGGAA 495

RESULT 13

ID Q11142 standard; DNA; 720 BP.

AC Q11142;

DT 03-JUN-1991 (first entry)

DE Alkaline phosphatase-IFN alpha fusion as CR2 ligand.

KW Cellular receptor 2; CR2; binding site; BS; auto-immune disease;

KW Epstein-Barr Virus; EBV; B lymphocyte; IFN alpha; interferon;

KW fusion protein; ligand; ss.

OS Synthetic.

FH Key Location/Qualifiers

FT CDS 47..703

FT /*tag= a

FT /product= alkaline phosphatase-IFN alpha fusion

FT protein

FT misc_RNA 1..253

FT /*tag= b

FT /label= alkaline phosphatase sequence

FT misc_RNA 254..720

FT /*tag= c

FT /label= IFN alpha sequence

FT misc_RNA 470..511

FT /*tag= d

FT /notes= "fragment pref. included"

FT misc_RNA 479..499

FT /*tag= e

FT /notes= "fragment most pref. included"

PN W09103251-A.

PD 21-MAR-1991.

PF 04-SEP-1990; U05027.

PR 08-SEP-1989; US-404679.

PR 20-APR-1990; US-512118.

PA (CALB-) CALIF INST BIOLOGIC.

PI Lernhardt W;

DR WPI; 91-101864/14.

DR P-PSDB; R11356.

PT DNA segment encoding CR-2 ligand and CR2 binding site - used to treat auto-immune disease, B-cell lymphoma and inhibit Epstein-Barr virus infection

PS Disclosure; Fig 3; 129pp; English.

CC The production of CR2 ligands including a binding site (BS) is possible by transforming a cellular host with a recombinant DNA mol. contg. this sequence. The ligand pref. includes a fragment encoded by the total CDS and the fragment of tag e. The ligand pref. contains only a single BS and has an amino acid sequence <100 CC (pref. <20) residues in length.

CC A therapeutic compsn. contg. the polypeptide is used to stimulate or inhibit B lymphocyte proliferation in patients with B cell lymphoma. B lymphocytes and myeloma's can be stimulated in patients with immunodeficiencies and immunoglobulin secretion by hybridoma cultures can be boosted.

CC The compsn. can be administered to inhibit infection in vitro or in vivo by Epstein-Barr Virus.

CC See also Q11140-42.

SQ Sequence 720 BP; 176 A; 190 C; 182 G; 172 T;

DB 2; Score 487; Match 99.2%; OryMatch 98.4%; Pred. No. 1.61e-305; Matches 491; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

Db 209 tgtgatcttgccctcaaacccacagcctgggttagcagagagccttgatgctcctggcacag 268
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 1 TGTGATCTGCTCAAAACCCACAGCCTGGGTAGCAGGAGCCTTGATGCTCTGGCACAG 60

Db 269 atgaggaaaaatctctcttctcctgcttgaaggacagacatgactttggatttcccaag 328
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 61 ATGAGGAGAAATCTCTCTTTCTCTGCTTGAAGCAGACAGCCTGACTTTGGATTTCGCCAG 120

Db 329 gagggatttggcaaccagttccaaaaggctgaaccagccctgtcctccatgagatgac 388
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 121 GAGGAGTTTGGCAACCACTTCCAAAAGGCTCAACCAATCCCTGTCTCCATGAGATGATC 180

Db 389 cagcagatcttcaatctcttcagcacaagaaggaactcatctgctgcttgggatgagaccctc 448
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 181 CAGCAGATCTTCAATCTCTTCAGACAAAGACTCATCTGCTGTGGATGAGACCCCTC 240

Db 449 ctagacaaattctacactgaactctaccagcagctgaatgacctgaagcctgttgata 508
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 241 CTAGACAAATTTACACTCAACTTACCAGCAGCTGAATGACCTGGAAGCCTGTGTGATA 300

Db 509 caggggtgggggtgacagagactccctgatgaaggagagactccattctggctgtgag 568
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 301 CAGGGGTGGGGGTGACAGACTCCCTGATGAAGGAGACTCCATTCTGGCTGTGAGG 360

Db 569 aaatacttccaaagaatcaactctctatctgaagagagaagaatacacagcccttgctgg 628
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 361 AATATCTTCCAAAGAAATCACTCTATCTGAAAGACAGAAATACAGCCCTTGTGCGCTGG 420

Db 629 gaggttgccagacgagaatcatgagatcttttcttctcaacaacttgcagaagaagt 688
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Qy 421 GAGGTGTGACAGCAGAAATCATGAGATCTTTTCTTCTGCAACAACCTTGCAAGAACT 480

Db 689 ttaagaagtaaggaa 703
||||| ||||||| |||||||

Qy 481 TTAAGAGTAGGAA 495

RESULT 14

ID N20005 standard; cDNA; 958 BP.

AC N20005;

DT 18-DEC-1992 (first entry)

DE Hybrid human leukocyte interferon LeIFA.

KW Leukocyte; interferon; antitumor; immunostimulant; virucide; plasmid; pLe-IFA.

OS Homo sapiens.

FH Key Location/Qualifiers

FT CDS 61..958

FT /*tag= a

PN EP-51873-A.

PD 19-MAY-1982.

PF 09-NOV-1981; 109579.

PR 10-NOV-1980; US-205579.

PR 23-FEB-1981; US-237388.

PR 25-SEP-1981; US-305657.

PA (GENE-) GENENTECH INC.

PI Goeddel DVN;

DR WPI; 82-41788E/21 (41788E).

DR P-PSDB; P20007.

PT Hybrid human leukocyte interferon(s) - useful for treating viral

PT and neoplastic diseases
 PS Disclosure; Fig 1; 54pp; English.
 CC This hybrid DNA fragment is encoded by the replicable expression
 CC vector plasmid pIe-IFA and may be expressed in Escherichia coli for
 CC production of the peptide. See also N20006-12, N20026-30 and P20008-
 CC 14.
 CC Sequence 958 BP; 266 A; 213 C; 191 G; 288 T;
 DB 4; Score 487; Match 99.2%; OryMatch 98.4%; Pred. No. 1.61e-305;
 Matches 491; Conservative 0; Mismatches 4; Indels 0; Gaps 0;
 Db 130 tgtgatctgctcaaacacagcctgggtacgagagacatgatgctcctggcacag 189
 Qy 1 TGTGATCTGCTCAAAACACAGCCTGGGTACGAGGAGGACCTTGATGCTCTGGCACAG 60
 Db 190 atgaggaatctctcttttctgcttgaaggacagacatgacttggattccccag 249
 Qy 61 ATGAGGAGAAATCTCTCTTCTGCTTGAAGGACAGACGCTGACTTTGGATTCGCCAG 120
 Db 250 gagagttggcaaccagttccaaaggctgaaccatccctgtctccatgagatgac 309
 Qy 121 GAGGAGTTGGCAACAGTTCCAAAGGCTGAACCATCCCTGCTCCATCAGATGATC 180
 Db 310 cagcagatcttcaatctcttcagcacaaggagctcatctgcttgggatgagaccctc 369
 Qy 181 CAGCATCTTCAATCTCTTACGACAAAGAGCTCATCTGCTGGTGGATGAGACCTC 240
 Db 370 ctgacaaattctacactgaactaccagcagctgaatgacctggaagcctgtgtgata 429
 Qy 241 CTAGCAAAATTTACACTCAACTCTACCAGCAGCTGAATGACCTGGAAGCCTGTGTGATA 300
 Db 430 cagggggtggggtgacagagactccctgatgaaggagactccattctgctgtgagg 489
 Qy 301 CAGGGGCTGGGGTGCACAGACTCCCTGTATGAAGGAGGACTCCATTCTGGCTGAGG 360
 Db 490 aaatactccaagaatacactctctatctgaaagaagaataacagcccttgcctgg 549
 Qy 361 AATATCTCCAAAGATCACTCTCTATCTGAAGAGAGAAATACAGCCCTTGTGCTGG 420
 Db 550 gaggtgtcagagcagaatacatgagatcttttctgtcaacaaacttgcaagaagt 609
 Qy 421 GAGGTGTGACAGCAAAATCATGAGATCTTTTCTTGTCACAAACTTGCAAGAAAT 480
 Db 610 ttaagaatgaacgaa 624
 Qy 481 TTAAGAAGTAAGGAA 495

RESULT 15
 ID N20026 standard; DNA; 1109 BP.
 AC N20026;
 DT 18-DEC-1992 (first entry)
 DE Human leukocyte interferon.
 KW Leukocyte; interferon; antitumor; immunostimulant; virucide.
 OS Homo sapiens.
 PN EP--51873-A.
 PD 19-MAY-1982.
 PF 09-NOV-1981; 109579.
 PR 10-NOV-1980; US-205579.
 PR 23-FEB-1981; US-237388.
 PR 25-SEP-1981; US-305657.
 PA (GENE-) GENENTECH INC.
 PI Goeddel DYN;
 DR WP1; 82-41788E/21 (41788E).

PT Hybrid human leukocyte interferon(s) - useful for treating viral
 PT and neoplastic diseases
 PS Disclosure; Fig 9; 54pp; English.
 CC This DNA fragment may be expressed in Escherichia coli for
 CC production of human leukocyte interferon. IFN may be used
 CC for treating viral and neoplastic diseases. See also N20005-12,
 CC N20027-30 and P20007-14.
 CC Sequence 1109 BP; 307 A; 232 C; 223 G; 347 T;
 DB 4; Score 481; Match 99.4%; OryMatch 97.2%; Pred. No. 1.98e-301;
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 Qy 61 ATGAGGAGAAATCTCTCTTCTGCTTGAAGGACAGACGCTGACTTTGGATTCGCCAG 120
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 Db 600 ggaagttgtcagagcagaatacatgagatcttttctgtcaacaaacttgcaagaaa 659
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 Qy 479 GTTTAAGAAGTAAGGAA 495

Search completed: Tue Aug 29 18:48:25 1995
 Job time : 40 secs.

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Qy 361 AATAGTCTCCAAAGATCACTCTATCTGAAGAGGAAGAAATACAGCCCTTGTCCTGG 420
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RESULT 3
LOCUS HSI6R6 742 bp RNA PRI 03-APR-1995
DEFINITION Human messenger RNA for leukocyte (alpha-2) interferon.
ACCESSION V00548
KEYWORDS complementary DNA; interferon; signal peptide.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Animalia; Metazoa; Chordata; Vertebrata; Mammalia;
Theria; Eutheria; Primates; Haplorhini; Catarrhini; Hominidae.
REFERENCE 1 (bases 1 to 742)
AUTHORS Streuli,M., Nagata,S. and Weissmann,C.
TITLE At least three human type alpha interferons: structure of alpha 2
JOURNAL Science 209 (4463), 1343-1347 (1980)
MEDLINE 81015442
COMMENT NCBI gi: 32740
FEATURES
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mRNA <1..742
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mat_peptide 52..546
/notes="reading frame (interferon)"
polyA_site 742
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BASE COUNT 202 a 170 c 168 g 202 t
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Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy 61 ATGAGGAGGAATCTCTCTTTCTCTGCTTGAAGGACAGACGCTTGATTTCCCGAG 120
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Db 232 cagcagatcttcaatctcttcagcaacaaggaactcatctgctgtgggatgagacccctc 291
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Qy 241 CTACACAAATTTCTACACTCTACACAGCAGCTGAATGACCTGGAGCCTGTGTGATA 300
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Db 352 caggggttggggtgacagagactcccctgatgaaggaggactccattctggctgtgagg 411
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Qy 301 CAGGGGTGGGGTGTCAGACAGACTCCCTCATGAAGAGGAGACTCCATTCTGCTGTGAG 360
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Qy 361 AATACTTCCAAAGAAATCACTCTCTATCTGAAAGAGAGAAATACAGCCCTTGTCCTGG 420
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Qy 481 TTAAGAAAGTAAGGAA 495
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RESULT 4
LOCUS I04187 1107 bp ss-DNA PAT 05-MAR-1993
DEFINITION Sequence 8 from patent US 4678751.
ACCESSION I04187
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
REFERENCE 1 (bases 1 to 1107)
AUTHORS Goeddel,D.V.
TITLE Hybrid human leukocyte interferons
JOURNAL Patent: US 4678751-A 8 07-JUL-1987;
Genentech, Inc.;
San Francisco, CA;

COMMENT NCBI gi: 268733
FEATURES
source Location/Qualifiers
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BASE COUNT 305 a 232 c 223 g 347 t
ORIGIN

Db 93; Score 493; Match 99.8%; QryMatch 99.6%; Pred. No. 0.00e+00;
Matches 494; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Db 240 atgaggagaatctctcttttctctgcttgaaggacagacatgactttggatttccccag 299
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Qy 61 ATGAGGAGGAATCTCTCTTTCTCTGCTTGAAGGACAGACGCTTGATTTCCCGAG 120
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Qy 121 GAGGAGTTTGGCAACCAAGTTCCAAAAGGCTGAACCAATCCCTGCTCCTCATGAGATG 180
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